MKM Engineers, Inc.

ENVIRONMENTAL ASSESSMENT

Explosive Decontamination of Select Buildings
Indiana Army Ammunition Plant
Charlestown, Indiana

Prepared by

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Reviewed by

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Submitted by

Indiana Army Ammunition Plant
11450 Highway 62
Charlestown, IN 47111

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ENVIRONMENTAL ASSESSMENT

EXPLOSIVE DECONTAMINATION OF SELECT BUILDINGS

INDIANA ARMY AMMUNITION PLANT

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Approved By: _____

Table of Contents

Section **Page**

APPENDICES

I. Purpose and Need for the Proposed Action

The proposed action is to perform explosive decontamination efforts and the disposal of real property at Indiana Army Ammunition Plant (INAAP). Approval of this action will allow for the decontamination of explosively contaminated unused and deteriorating facilities in order to facilitate transfer of these areas to the State of Indiana for recreational purposes and to the INAAP Reuse Authority for subsequent redevelopment.

II. Description of Proposed Action

A. General

The proposed action consists of the preparation and execution of the explosive decontamination (by thermal decomposition) of select structures and equipment, excessing of personal property (demolition), scrap metal retrieval, hazardous materials testing and off-site disposal. This document addresses the application of the proposed action to the current scope of work, i.e. explosive decontamination via thermal decomposition of seven Load Lines (#2 – 8) and two Igniter Lines (#3 and 4) in the LAP Area at INAAP.

An Explosive Safety Submission (ESS) detailing operations to take place at INAAP has been approved by the Department of Defense Explosive Safety Board (DDESB) on 02 January 2003.

B. Specific Actions of Thermal Decomposition

Thermal Decomposition (TD) essentially equates to burning the structures to the ground with a majority of the equipment in-place, thereby negating the need to manually inspect and disassemble every piece of equipment. All operations will be conducted in accordance with (IAW) the requirements of IOCP 385-1, Classification and Remediation of Explosive Contamination. (Appendix A).

During the burning process, as per IOCP 385-1, the equipment is heated to a minimum temperature, (a level above the decomposition temperature of the contaminant) for a pre-determined time duration (i.e. “long enough to assure the largest mass is at that temperature, consuming contaminants by oxidation”.) which assures a 5X decontamination level as defined by IOCP 385-1.

A 5X (XXXXX) level of contamination indicates that contaminant(s) are not present in quantities sufficient to pose an explosively safety hazard. A 5X article may be welded, drilled, sawed and sold to the public. Subsequently, the equipment typically becomes useless for its intended purpose and is then deemed as scrap.

Select buildings to be burned will have identified ACM evaluated for removal from them, utilities disconnected and a minimum of a 100-foot zone surrounding the site will be cleared of excessive vegetation by mowing. Floor drains will be plugged with Bentonite grout unless the

building has been condemned. If additional ventilation is required, wall openings and/or window glass on the ground floor shall be knocked out from the outside of the building under the direction of a structural engineer. Hay, fuel oil and wooden pallets or other dunnage will be added to the buildings to augment the fuel within the buildings.

Remote ignition using detonation cord and electric blasting caps or matches (squibs) will be conducted from outside the Minimum Separation Distance (MSD) of 1,250 feet. The local Fire Department's presence will be required during the burn process. No personnel will be allowed within the MSD until the "all clear" status has been announced, and a fire watch will be maintained at the site until all visible smoke has been extinguished.

Once the fire has eclipsed, removal of surface debris and ash will immediately begin. During the initial stages of debris removal all thermal-sensing devices will be recovered and examined to ensure thorough thermal decomposition of explosives within the buildings. Debris will be tested for the presence of explosive constituents and will be disposed of off site IAW Federal, state and local environmental guidelines.

III. Alternatives Considered

A. No Action Alternative

It was determined that the "No Action" alternative is not in the best interest of INAAP or the community. Without decontamination, these facilities can only be transferred to a licensed explosives operator and could only be used for explosive-related work. These facilities are not identified for explosive-related work in the INAAP RA's reuse plan and it is highly unlikely that there is sufficient interest in the explosive community to acquire every explosively contaminated facility on INAAP. Therefore, if the proposed action is not implemented, the selected facilities would remain in an inactive status. If they are not used and maintained, the facilities would deteriorate further, increasing the potential safety hazard and also depriving the local community of an opportunity for redevelopment.

B. Alternative Traditional Demolition

Traditional means of demolition of these structures via ball or excavation is considered too dangerous to worker health, and would not guarantee complete desensitization of explosives. Much of the production equipment and facilities have hidden surfaces which easily trap propellant and explosives manufactured in these buildings (piping for instance). Due to the quantity of unexposed structural and equipment surfaces, physical disassembly of these components would be labor intensive, and would risk residual explosive detonation during thousands of disassembly operations. The occurrence of physical shock and temperature increase traditionally present in ball/excavation, and detailed disassembly could initiate detonation of residual explosives present in the explosive production facilities and equipment.

Department of Defense Explosive Safety Board has concurred(January 03), and thereby mandated burning of the facilities to desensitize the propellant prior to divestiture.

The "no action" alternative would then result in the explosive risk remaining on the property as well as loss of revenues and jobs for the community, whereas, the "inspection and disassembly" alternative would be considered costly and may result in increasing the on-site safety hazard for workers and the general public.

IV. Affected Environment (Baseline Conditions)

A. Previous Environmental Analysis

An Environmental Baseline Survey (EBS) was completed in August 1998 that classified the environmental conditions of all sections of INAAP into Seven (7) DOD Environmental Condition Codes (categories). The category guidelines were used to identify varying degrees of environmental hazards ranging from Category 1 – "Uncontaminated" to Category 7 – "Unevaluated".

At the present, there is an ongoing remedial investigation being conducted within the LAP Area (INAAP-75) as part of the Installation Restoration Program. (Final Phase II RFI Report, Load, Assembly and Pack Area (Site 75), June 2002. The Army and IDEM are working to finalize a proper course of action.

B. General

The areas in which the proposed action will take place were utilized to produce nitrocellulose and nitrocellulose-based explosives products from raw materials, load and pack explosives into munitions, store and ship said products. Overall, the installation has not been involved in explosives production activities since 1992.

The sites are generally located on the western side of INAAP along Highway 62. Vehicular traffic along Highway 62 has hundreds of vehicles passing during a typical day. There are minimal noise impacts from current levels of activity.

C. Specific Environmental Features

1. Air Pollution

The INAAP is located in Clark County, Indiana and is a part of the Louisville, Kentucky interstate ozone non-attainment area. This area was classified as a moderate ozone non-attainment since the air quality did not meet the one-hour standard as of 1996. A new target date for meeting the ozone standard is November 15, 2003.

According to a 9/28/99 Department of Environmental Management memorandum, measured air quality has improved considerably since 1990 and numerous pollution reduction measures mandated by the federal Clean Air Act have been put into place as well as additional clean air measures beyond those required by federal law. It is expected that the Louisville interstate area will attain the air quality standards by the date stated. There are currently no activities resulting in air concerns in the areas proposed for this action other than the minimal effects of vehicular traffic near the area.

2. Water Pollution

INAAP is located in an area that has drainage through 5 passages involving several creeks flowing into the Ohio River. There are 7 installation outfalls regulated under National Pollution Elimination System (NPDES) permits as issued by the Indiana Department of Environmental Management. INAAP receives its drinking water from an aquifer located under the Ohio River. There are currently no activities resulting in water quality concerns in the areas proposed for this action.

3. Groundwater

Groundwater at Indiana Army Ammunition Plant is present in the bedrock formations of the upland areas and in the terrace/floodplain sand and gravel deposits located within the Ohio River valley. The groundwater occurs primarily along bedding planes, joints and fractures, and in caverns that have developed by the dissolution of limestone by groundwater (i.e., karst areas).

At present there are no groundwater issues present at INAAP based on various groundwater monitoring and sampling activities that have taken place at INAAP since 1996.

4. Soil

Completed Phase I (2001) and ongoing Phase II environmental investigations in accordance with the continuing Installation Restoration Program (IRP) are being conducted at INAAP. These investigations have indicated the presence of nitroaromatic contamination in soils located in the areas of the proposed actions. These investigations have also noted soil contamination due to heavy metals in these same areas. It is anticipated that future soil remedial action will be required in the P & E area at various locations.

5. Noise

At the present time, there are no major noise problems associated with the operations at INAAP due to the absence of major on-site activities and the attendant potential for noise complaint.

6. Solid Waste

Due to the level of activities at INAAP, the installation has no problems relating to the handling and disposal of solid waste. The installation has no active on-site landfill facilities or in-house solid waste disposal capability. Thus, wastes generated by the installation are processed for disposal by a commercial waste firm. Solid waste generated by commercial tenants is handled by commercial waste disposal firms.

7. Hazardous Waste

At the present time, INAAP has no significant environmental problems relating to the present generation and/or disposal of hazardous wastes. The primary types of hazardous waste generated on the installation consists of used solvents from painting/cleaning operations. All wastes are handled for off-site recycling and/or disposal by the Reuse Authority.

8. Vehicular and Rail Traffic

The vehicular traffic at INAAP is comprised of operations relating to the Army's staff, maintenance contractor and commercial tenants. The vehicles mainly utilized are personal vehicles, small trucks, and commercial trucks. A small amount of tenants utilize the rail system for delivery of materials. The balance of rails at INAAP are used for long-term storage of railcars. A section of rail and a switchyard lie in one of the areas of concern.

9. Asbestos Containing Material (ACM)

An asbestos survey has been completed (1991) by the U.S. Army that will be utilized as a guide in order to remove the ACM prior to the proposed actions at certain facilities/structures at INAAP. The facilities/structures in question will be physically inspected before any tasks involved in the proposed action take place. This inspection will consist of a walkthrough of facilities, structures and areas of concern in order to document locations and conditions of ACM.

10. Miscellaneous Environmental Hazards

A hazard analysis survey will be performed and documented by a team made up of a structural engineer, the project manager and an Unexploded Ordnance Safety Officer (SUXO). This analysis will consist of the team performing a physical walkthrough of facilities, structures and areas of concern involved in the proposed action documenting the conditions of the building in addition to the ACM conditions.

The hazard analysis of buildings and structures that have been identified for explosive decontamination will be completed to include the evaluation and documentation of the presence/nature of explosive contamination, as well as items that may be potential environmental hazards. These items include mercury-containing switches and gauges, mercury-containing

fluorescent lights, light ballasts potentially containing PCBs, and other electrical equipment potentially containing PCBs.

11. Applied Dried Paints

In the construction of the facilities paints were applied to the walls and the ceilings. The same paints were applied in and through out each structure or grouping of structures. The type of paint applied was based upon the type, location and function of the structure or item being painted. Thus, the walls and piping in a load line can contain several distinct but uniform types of paints, which can be differentiated by the paint color. Unlike a residential structure it can be said with certainty that when a paint type was selected for use it was utilized consistently through out the structure or grouping of structures for that particular purpose.

If certain types of paints containing PCB's or heavy metals are thermally decomposed, the air emissions may be contaminated with these substances. Sampling of paints have taken place in accordance with an Indiana Department of Environmental Management (IDEM) approved sampling plan (Appendix B) (August 2003) in order to characterize the dry applied paints used in various structures and grouping of structures at INAAP.

The paint samples were analyzed to determine the concentration of Polychlorinated Biphenyls (PCBs) and if the dried paints, as wastes, are subject to regulation under 40 CFR 761. In addition, the paint samples were analyzed for the eight (8) RCRA heavy metals to determine the potential combined loading with respect to NESHAPs emissions. The analytical results are found in Appendix C.

12. Species and Vegetation Concerns

In a 1997 survey, the U.S. Fish and Wildlife Service (USFWS) confirmed the presence of the Federally Endangered gray bat (Myotis grisescens) at INAAP. The results of the survey provided strong evidence that the cave system on INAAP supports a maternity of gray bats. The area of concern related to the gray bat is in the Jenny Lind Run and Little Battle Creek areas of INAAP which is North East of the proposed action location.

Appendix D is the USFWS concurrence memo dated 29 May 2003 which lists provisions that shall be adhered to in support of the proposed action.

13. Historic/Prehistoric Archeological Preservation Concerns

It has been determined that a majority of the buildings and structures at INAAP are eligible for the National Register of Historic Places (NRHP) under Criteria A of the 36 CFR 800.4 for their contribution to WWII from 1940-1945.

Included in Appendix E is the Programmatic Agreement between the Department of the Army and the Indiana State Historic Preservation Officer for the Disposal of Lands and Facilities at the Indiana Army Ammunition Plant.

V. Environmental Consequences of the Proposed Action

A. Specific Environmental Features

1. Air Pollution

In order to conduct explosive decontamination through TD and to ensure the integrity of the air quality at INAAP, a burn permit shall be secured from the Indiana Department of Environmental Management (IDEM) prior to initiation. This task will require the coordination and discussion with the IDEM Air Quality Section followed by the issuance of the burn permit to the INAAP. This task will require the completion of the Hazard Analysis Survey to determine the elements involved in the burn. In addition, the following elements will be completed during this task:

- Review of Regulatory Requirements
- Regulatory Notification of the local and State air quality agencies
- Assist INAAP in coordination with the public and tenants
- Coordination with the State Fire Marshall
- Coordinate with Local Fire Departments
- Identify air monitoring requirements
- Submittal of Request for Burn Permit
- Response to IDEM comments
- Issuance of Burn Permit

All procedures included in this proposed action shall adhere to all requirements included in the Burn Permit. This will ensure that the proposed action will not have a significant impact on the air quality at INAAP.

2. Water Pollution

This proposed action is not expected to create any wastewater effluent since water is not utilized in the TD process. The only wastewater effluent from the proposed operations consists of domestic sewage. The domestic sewage from the facilities and operations will be discharged and treated on site at the P & E or LAP sewage treatment plants. Stormwater run-off from the areas of concern is small in quantities, will have minimal effects and will be controlled by best management practices pursuant to the protection of human health and the environment.

3. Groundwater

The impact of the proposed action relative to groundwater contamination, if any, will be negligible. Weather conditions will be closely monitored in order to assure that TD procedures, debris and ash clean-up will not take place in the event rain is imminent. Water spray will not be utilized to extinguish fires after the burn, except in case of emergencies by the Fire Department. This will ensure that groundwater will not be impacted by stormwater run-off. The materials being used by the contractor will be carefully and properly handled, ensuring groundwater will not be contaminated through the proposed action. The implementation of this action should have no effect upon the groundwater within the area of interest.

4. Soil

The soils in one of the areas of concern (LAP Area) presently contain trace levels of nitroaromatic explosives and nitrate/nitrite ions from past operations. Specific information concerning the soil condition can be found in the Pre-Draft Removal Action Work Plan for the LAP area (April 2003). Weather conditions will be closely monitored in order to assure that TD procedures, debris and ash clean-up will not take place in the event rain is imminent. This will lessen the possibilities that soils will be impacted by falling debris and ash buildup. This will also aid in the minimization of soil impact from stormwater run-off. The implementation of this action should minimize impacts of debris and ash generated by the TD operation upon the soil within the immediate and close proximity of the area of interest.

5. Noise

The accomplishment of the proposed action would result in a temporary minor increase in the general noise level within the general area of the proposed action. Such an increase would primarily result from an increase in vehicular activity in the area.

Short term high decibel noise levels will take place during detonation of burning materials and in the event of an unexpected explosion during the TD procedures.

The effects of this effort will be temporary and the minimal increase in noise producing activity should not be notably discernable off the installation.

6. Solid Waste

Due to the nature of the proposed action, solid waste that will be generated will immediately be collected and disposed of off-site IAW all local, state and Federal regulations. In overall consideration, the effort would have only minor environmental impact, to an off-site location, based on solid waste and solid waste disposal.

7. Hazardous Waste

Hazardous items may be encountered during demolition that will require special handling, storage, transportation, and off-site disposal. Management of these items will be conducted in accordance with all applicable Federal, State, DOT and local requirements as will all wastes generated during this proposed action. The effect of this action will be negligible at most due to the previously noted process measures.

8. Vehicular and Rail Traffic

There will be a minimum amount of temporary vehicular traffic mainly from personal vehicles, material handling equipment and trucks hauling solid wastes. Based on this activity, this effort will have no significant environmental impact.

Public roads surround the proposed action areas and INAAP. Main rail and switchyard activities impact one of the areas of concern. (LAP Area) Engineers will coordinate activities, block or divert traffic during the thermal decomposition process until "all clear" determination is announced utilizing a plant wide siren blast and plant wide radio communication.

9. Asbestos Containing Material (ACM)

ACM will be removed as identified in the 1991 survey conducted by the U.S. Army in accordance with Federal and state regulations, with transportation and off-site disposal completed to an approved facility. Buildings containing ACM which have been determined to have structural or explosive hazards which precludes workers from entering will remain and burned in place as part of the TD process. As per 326 IAC 4-1-4.1(a)(c) "Open Burning Provision", "Burning of highly explosive or other dangerous materials for which no alternative disposal method exists or where transportation of such materials is hazardous." Based on these noted process measures, the effect of this activity will be negligible on the environment.

10. Miscellaneous Environmental Hazards

Items such as mercury-containing switches and gauges, mercury-containing fluorescent lights, light ballasts potentially containing PCBs, and other electrical equipment potentially containing PCBs may be identified during the hazard analysis walkthrough.

In the event that such items are encountered, removal and off-site disposal processes will take place IAW all local, state and Federal regulations. Buildings containing the abovementioned hazards which have been determined to have structural or explosive hazards which precludes workers from entering will remain and burned in place as part of the TD process. As per 326 IAC 4-1-4.1(a)(c) "Open Burning Provision", "Burning of highly explosive or other dangerous materials for which no alternative disposal method exists or where transportation of such materials is hazardous." Based on these noted process measures, the effect of this activity will be negligible on the environment.

11. Applied Dried Paints

Paint sampling took place prior to this proposed action according to the IDEM approved sampling plan. The goal of this sampling was to achieve characterization of dry applied paints used in various structures and grouping of structures at INAAP. The paint samples were analyzed to determine the concentration of Polychlorinated Biphenyls (PCBs) and if the applied dry paints, as wastes, are subject to regulation under 40 CFR 761. In addition, the paint samples were analyzed for the eight (8) RCRA heavy metals to determine the potential combined loading with respect to NESHAPs emissions. The regulatory approved paint sampling plan and results are respectively found in Appendices B and C. All six (6) paint types were non-detect for PCB's. In addition, the eight (8) heavy metals were evaluated for potential emissions during the TD process. The coverage of each paint color was determined and based upon the analytical concentration the total sum of these metals was calculated. This evaluation determined that across all nine (9) areas (i.e., Igniter Lines #3 and 4, and Propellant Charge Load Lines #2 thru 8), the total weight of metals that could potentially be emitted during the TD process is 25.21 pounds. For comparison purposes, this is well below the NESHAPS allowable of ten (10) tons per year of any hazardous pollutant from a continuous major stationary source, (Clean Air Act, Sec 112 Part A. Air Quality and Emissions Limit).

12. Species and Vegetation Concerns

Appendix D contains the USFWS concurrence memo dated 29 May 2003 listing the following provisions that shall be adhered to in support of the proposed action:

i. Prohibit any disturbance of forest cover in the Jenny Lind Run and Little Battle Creek drainages.

ii. In drainages on the installation other than Jenny Lind Run and Little Battle Creek, prohibit any disturbance of forest cover within 100 ft. (30 m) of a perennial stream or within 50 ft (15m) of an intermittent stream.

iii. Prohibit earth moving activities and disturbance of natural vegetation within 100 ft. (30m) of any karst feature at INAAP.

iv. When major earth-moving activities are conducted more than 100 ft (30m) from a karst feature but still within the drainage area of the karst feature, ring and stake the area of activity with silt fencing and hay bales, respectively, to control erosion and prevent debris from entering the karst feature.

Vegetation and wildlife in the area proposed for this activity are not expected to suffer any long-term impact. Wildlife may initially be disturbed by the increased activities in the areas, however, no natural habitats will be destroyed if the proposed action is approved.

13. Historic/Prehistoric Archeological Preservation Concerns

As per Section II, A. of the attached Programmatic Agreement; "The Army may treat and demolish historic buildings or structures that pose a threat to health and safety due to unsafe conditions of the structure or contamination by hazardous, toxic, and/or radiological substances."

The procedures included in this proposed action will adhere to the stipulations set forth in the Programmatic Agreement between the Department of the Army and the Indiana State Historic Preservation Officer for the Disposal of Lands and Facilities at the Indiana Army Ammunition Plant. (Appendix E)

14. Protection of Children

Executive Order 13045 seeks to protect children from disproportionately incurring environmental health risks or safety risks that might arise as a result of Army policies, programs, activities, and standards. It is the policy at INAAP that no one under the age of 18 is allowed on the facility unless accompanied by an adult. There is an existing property fence line that prevents access onto the INAAP property. Routine patrols by INAAP security are also conducted.

For LAP Area burn, there are no schools on the INAAP boundary. There is one elementary school slightly over 1 mile away; Utica Elementary. There is a high school 2 miles away; Jeffersonville High. For the P&E Area burn, there are four schools within a one mile radius: Charlestown Middle, Pleasant Ridge Elementary, St. Michaels, and Charlestown High School.

15. Environmental Justice

In accordance with Executive Order 12898, the Army is required to identify and address, as appropriate, the potential for disproportionately high adverse human health or environmental effects of their actions on minority or low-income populations.

The Army has not directly or indirectly used criteria, methods, or practices that discriminate on the basis of race, color, or national origin. No disproportionately negative economic or social impact is anticipated to minority or low-income communities, and no human health or environmental impacts are believed to be associated with the Proposed Action.

16. Cumulative Impacts

Cumulative impacts on resources can result from the relationship of the proposed project or action to other past, present or reasonably foreseeable future actions in the area. Cumulative impacts can result from minor, but collectively substantial, actions undertaken over a period of time. In accordance with the NEPA and CEQ regulations, a discussion is required of cumulative impacts resulting from actions and projects that are proposed, under implementation, or reasonably anticipated to be implemented in the near future.

It is believed that the Proposed Action as described in Section II of this EA would not create a substantial impact upon the natural and built environment. At this time, there are no known existing actions or current future proposals from which a substantial cumulative impact in the area of concern could result when combined with the effects of the Proposed Action.

B. General

The requirements of the Emergency Planning and Community Right to Know Act (EPCRA) have been fully implemented at INAAP to assure that the community, and especially the Local Emergency Planning Commission (LEPC), is made aware of plant activities. Releases, if any, have been, and will continue to be, reported in accordance with EPCRA procedures. Emergency Response arrangements are in place with the Utica and Charlestown Volunteer Fire Department at INAAP.

All work executed must be accomplished in a manner which ensures the health and safety of the workforce and the public at large. Explosive Ordnance (OE) is a safety hazard and may constitute an imminent and substantial endangerment to the local populace and site personnel. All activities involving work in areas potentially containing explosive hazards shall be conducted in full compliance with the Department of Army (DA) and the Department of Defense (DOD) requirements regarding personnel, equipment, and procedures. Federal regulations under 29 CFR 1910.120 shall apply to all actions taken at this site.

C. Summary: Anticipated Environmental Course of Action

In consideration of the previously noted minimal environmental impacts, the accomplishment of the proposed action should result in no significant environmental impact. The cumulative effects of this operation are minor resulting in virtually no adverse cumulative environmental impacts, and no long-term adverse impact would be anticipated from the effort.

VI. Agencies and Persons Concerned

Kenneth Nabb,	U.S. Army, BRAC Technical Support Office
Rich Mendoza,	U.S. Army, BRAC Technical Support Office
Rick Murphy,	U.S. Army, BRAC Technical Support Office, Legal
Kerry Dupaquier,	INAAP Commander's Representative
Phil Perry,	IDEM Office of Compliance
Patrick Powlen,	IDEM Air Compliance
Charles Grady,	IDEM Compliance & Response, OLQ
Doug Griffin,	IDEM Compliance & Response, OLQ
David Rice,	IDEM, OAQ

Marilyn Kidwell,	IDEM, OAQ-ACS-1
Herm Carney,	IDEM, OAQ-ACS-1
John Clevenger,	IDEM Asbestos Section
Lori Pruitt,	U.S. Fish & Wildlife Services Office
Richard Callahan,	MKM Engineers, Inc.
Shahrukh Kanga,	MKM Engineers, Inc.

VII. Conclusion

It has been determined that the proposed action will cause no significant impact to the INAAP environment. Aspects including air and water pollution potentials, waste generation potential and potential impacts to the surrounding areas condition have been evaluated to make this determination. A Finding of No Significant Impact (FNSI) is attached. (Appendix F)

Appendix A – IOC Pamphlet 385-1

IOCP 385-1, Classification and Remediation of Explosive Contamination, 16 July 1997

Department of the Army
Headquarters, U.S. Army
Industrial Operations Command
Rock Island, IL 61299-6000

*IOCP 385-1

16 JUL 1997

Safety

CLASSIFICATION AND REMEDIATION OF EXPLOSIVE CONTAMINATION

Applicability. This pamphlet applies to all HQ, IOC, elements and their subordinate installations.

Decentralized printing. All IOC installations are authorized to locally reproduce this pamphlet.

Suggested improvements. The proponent of this pamphlet is the Deputy Chief of Staff for Industrial Risk Management. Users should send comments and suggested improvements to Commander, HQ, IOC, ATTN: AMSIO-DMS, Rock Island, IL 61299-6000.

Distribution. Distribution of this pamphlet is in accordance with requirements submitted by IOC organizations (stocked/issued by Rock Island Arsenal, ATTN: RSSC-PSP).

FOR THE COMMANDER:

Official:

JAMES P. FAIRALL, JR.
Colonel, GS
Chief of Staff

Contents

*This pamphlet supersedes AMCCOMR 385-5, 2 September 1987.

Contents

1. Purpose. To provide guidance to IOC installations and elements, enabling them to detect explosive contamination, determine the contamination status, recommend remedial decontamination methods, and mark contaminated items. This pamphlet is not a substitute for attention to detail or for knowledge and experience specific to the materials, processes, procedures, and contaminants involved.

2. References. The TM 700-4, Decontamination of Facilities and Equipment, October 1978 (or latest revision) contains additional information on explosive decontamination.

3. Definitions.

a. Articles. The term "articles" refers to items such as cartridge cases, projectile bodies, bullets, pipes, scrap, etc., which are not pieces of equipment or buildings.

b. 1X (X) level of contamination. This level applies to articles, equipment, and buildings subjected to only routine, after-use cleaning. Substantial contamination (explosive residue) continues to exist. Limit maintenance to minor adjustments.

c. 3X (XXX) level of contamination. This level applies where cleaning has removed surface contamination, but significant amounts (enough to present an explosive safety hazard) may remain in less obvious places. The article, equipment, or building is safe for its intended purpose. Do not subject 3X-contaminated articles, equipment, or buildings to welding, drilling, sawing,

or other processes that may generate enough heat to ignite residual contamination. Such articles, equipment, or buildings are safe for routine maintenance and careful disassembly, but not for sale to the general public. Qualified buyers (as set forth in paragraph 13c(2)) may buy them.

d. 5X (XXXXX) level of contamination. This level applies when no significant amounts (not enough to present an explosive safety hazard) of contaminants remain. The article, equipment, or building does not pose an explosive safety hazard and is safe for welding, drilling, sawing, etc., and sale to the general public.

e. 0 (zero) level of contamination. This level applies when the articles, equipment, or buildings were never contaminated. They pose no explosive safety hazard and are safe for welding, drilling, sawing, etc., and sale to the general public.

f. Qualified buyer. A qualified buyer is a company or individual possessing a Bureau of Alcohol, Tobacco, and Firearms (BATF) explosive manufacturer's license or meeting the requirements of paragraphs 13c(2)(a) through 13c(2)(d).

g. Explosive safety hazard. The hazard of personal injury and/or equipment damage created by residual explosives on articles, equipment, or buildings. The amount of explosives required to create an explosive safety hazard is dependent on the properties of the explosive, the concentration or distribution of the contaminant on the surface, and the amount of confinement in the potential incident.

4. Background.

a. From the start of the modern Government-owned explosive and ammunition production base until the early 1990's, each time production ceased, managers assumed they would need the facilities and equipment in the future and preserved them. The contamination status decisions on individual articles, pieces of equipment, buildings, and even whole production lines were

simple. Classifiers marked almost everything as "3X", even if uncontaminated. This was the simplest, most economical course when keeping everything for its original purpose.

b. In the 1990's, the basic assumption, "the Army will always keep it", changed to "get rid of it, we no longer need it." Because the end use changed, the IOC needed more specific guidance:

(1) on determining the correct contamination classification of an article, piece of equipment, or building,

(2) on establishing remediation measures to go from a 3X classification to a 5X classification,

(3) on changing obsolete/incorrect classifications from 3X to 5X without performing additional remediation,

(4) on changing obsolete/incorrect classifications from 3X to 0 without performing additional remediation.

5. Guidance structure. The guidance in this document centers on visual inspection. It asks questions about the article, piece of equipment, or building under consideration, and provides general rules and specific examples telling how to proceed with the answers. The objective is to provide a progression of inquiry and general rules which result in logical and defensible classifications and remediation measures.

6. Porous or not. The first question in evaluating contaminated articles, equipment, or buildings is, "Is the material porous to the contaminant(s)?"

a. The division of "porous" from "nonporous" affects the depth/detail of the visual examination. Porous generally refers to building materials, such as wood, gypsum board, etc., and paper products, like cardboard. Porous materials have a surface which is not smooth, not hard, nor resistant to contaminant absorption. Porous material lends itself to visual examination because it seldom has hidden surfaces. Nonporous refers to metal or other materials with hard, smooth, and resistant surfaces.

NOTE: Porous material covered with a nonporous finish may resist contamination and clean to acceptable levels for reuse or release.

b. Experience with porous materials created these rules:

(1) POROUS RULE 1: You must assume physical removal cannot decontaminate porous material contaminated by solids, unless a smooth nonporous coating covers the exposed surface.

(2) POROUS RULE 2: If evidence of a liquid or vapor contaminant is present, you must assume the contaminant penetrates the porous material surface, and physical cleaning will not decontaminate the material.

(3) POROUS RULE 3: For partially-contaminated porous material, you may carefully cut away or separate the contaminated part from the rest and appropriately label each part.

(4) POROUS RULE 4: You must assume porous material exposed to an explosive contaminant which leaves no visible trace or signature is contaminated. Testing may change this assumption.

c. Nonporous materials often have areas and discontinuities not readily accessible to visual examination where contaminants may be present. In some cases, careful disassembly of articles and pieces of equipment will reveal hidden surfaces and contaminants. In other cases, cracks may hide contamination. Cracks often occur in welds or joints, but can occur in other areas as well. Experience has shown the amount of explosive contaminant in cracks is insufficient to create a hazard where the outside surfaces are confirmed clean and the nonporous material is 1/8-inch thick or less. Experience with nonporous materials created these rules:

(1) CRACK RULE 1: In nonporous materials greater than 1/8-inch thick, the quantity of explosives contained in cracks may be sufficient to cause an explosive hazard. NOTE: Crack Rule 1 is only a guide. Use your judgment and deviate from the rule only toward the safer side.

(2) CRACK RULE 2: You must assume all nonporous materials over 1/8-inch thick have cracks, unless a detailed visual inspection proves otherwise.

7. Presumed contaminated or not. The second question in evaluating contaminated articles, equipment, or buildings is, "By virtue of environment, must you presume the material under consideration contaminated, or can you presume it not contaminated?"

a. The answer determines the extent of visual inspection required for proof of the contamination status. You must base the presumption of "contaminated" or "not contaminated" on use, the properties of the contaminants, and the environment. If a doubt exists, you must presume articles, equipment, and buildings contaminated.

b. If, by virtue of its environment, the article, piece of equipment, or building is "presumed contaminated", a very detailed visual examination is required to prove it is not contaminated, denying the assumption. If that material is "presumed not contaminated", for proof you must inspect only the likely places for contamination, confirming the assumption.

c. "Presumed contaminated" applies to everything in rooms or bays with uncontrolled or uncontained explosives, propellants, and pyrotechnics. Exposure need not be continuous to require a presumed contaminated evaluation. Mixer bays are examples of presumed contaminated locations. Even closed mixers allow many opportunities for explosive contamination of the area during loading and unloading. Explosive dusts and vapors potentially contaminate all areas they contact.

(1) PRESUMED CONTAMINATED RULE 1: You must label presumed contaminated articles, pieces of equipment, and buildings 1X or 3X unless proof establishes otherwise.

(2) PRESUMED CONTAMINATED RULE 2: To assign a 5X or 0 classification to presumed contaminated articles, pieces of equipment, and buildings, you must inspect and/or test every surface.

(3) PRESUMED CONTAMINATED RULE 3: Where a doubt exists, articles, pieces of equipment, and buildings are presumed contaminated.

d. A "presumed not contaminated" evaluation results from evidence the article, piece of equipment, or building had no exposure to uncontrolled or uncontained explosive contaminants or has been completely decontaminated by a verified and repeatable process. Articles from an equipment room or equipment properly labeled 5X are normally presumed not contaminated.

(1) PRESUMED NOT CONTAMINATED RULE 1: You may label presumed not contaminated articles, pieces of equipment, and buildings 0 or 5X only after inspection and/or testing reveals no contamination on the surfaces where it is likely to exist.

(2) PRESUMED NOT CONTAMINATED RULE 2: If you find contamination on a presumed not contaminated article, piece of equipment, or building, you must change the presumption and inspect/treat it as presumed contaminated.

e. In a presumed contaminated area, contaminants may pass to interiors, collecting in places not accessible to visual examination. In presumed not contaminated areas, few or no transmittable contaminants are present to accumulate in hard-to-see places. You cannot visually inspect all surfaces of articles or equipment containing holes, blind spaces, rivets, open seams, cracks, etc. Nor can you visually inspect buildings with hollow walls (stud-type walls with both sides covered). Paragraph 11 lists several other special cases where hazards may exist.

f. How accidents and abnormal operations affect the decision if an article, piece of equipment, or building is presumed contaminated depends on the accident frequency, how widespread the potential contamination is, the ease of detection, and the harmful effects of a wrong decision. All these factors depend on local knowledge and judgment. Local judgment will prevail. These examples may assist you in coming to a local decision.

(1) Nitroglycerine (NG) nitrator bay (Biazzi process). During normal operations, NG remains totally enclosed within the process equipment and sealed well enough to prevent migration; but during abnormal operations, the process may dump NG to a drowning tank, thereby exposing the atmosphere briefly. Although process upsets of this type are rare, the contaminant (NG) leaves no visible trace when absorbed in porous material. The effects of a wrong decision are potentially catastrophic, so it appears prudent to label this operation "presumed contaminated".

(2) Shipping building. During normal shipping operations, there are no exposed explosives, but a container could rupture and contaminate a small area. This is most likely when handling bulk material. Because the possibility of accidental contamination is small and the contaminant can be readily identified and cleaned, you would probably be safe in classifying the building as "presumed not contaminated".

8. Visual detection. The third question in evaluating contaminated articles, pieces of equipment, and buildings is, "Does the contaminant leave a visible trace or signature?"

a. In most instances, the answer is yes, but there is one notable exception, NG. NG is a milky, oily liquid at ambient temperatures above 54 degrees Fahrenheit. The milky color is visible in large batches but virtually disappears when a small amount spreads over a surface. This makes it hard to detect in cracks and crevices. NG absorbed into porous material leaves no visible trace. When you heat materials containing NG, some of the NG will vaporize and condense on cooler objects. This leads to the NG rule.

NG RULE: You must consider any porous material totally contaminated if it was in direct contact with NG-containing material or from an environment where NG-containing material was heated.

b. "What if a nonexplosive material looks similar to an explosive one?" If research shows both materials could be present, two options exist. The first is to assume any material noted during visual examination is the explosive material and

proceed on that assumption. The second option is to perform chemical tests on the found material to determine which of the two it is. One of the simplest chemical tests is the use of an indicator solution. These solutions change color in response to specific chemicals or compounds. You must take care to select an indicator solution that correctly identifies the explosive contaminant while minimizing false positive indications. For example, Webster's reagent detects substances with high nitrogen, from nitrated explosives to some fertilizer. Before using any indicator solution, consult a chemist or other knowledgeable person concerning what to use and how to use it.

9. Visual examination. The primary objective of visual examination is to assist in proper classification of articles, pieces of equipment, or buildings, following the guidance and rules.

a. Only knowledgeable individuals familiar with the explosive contaminants; the articles, equipment, or buildings involved; and decontamination methods qualify to conduct visual examinations. The light and equipment at the inspection site must be sufficient to assure a proper and detailed examination.

b. The visual inspection requirements for porous material are much the same for both the "presumed contaminated" and the "presumed not contaminated" categories when you are looking at individual pieces of material where normally all surfaces are readily visible.

10. Remediation.

a. Decontamination methods are specific to the explosive contaminant, its form, the level of decontamination required, and the article, piece of equipment, or building involved. A knowledgeable individual must tailor all specific decontamination plans and efforts. Generally, there are only three decontamination processes:

(1) Chemical/biological alteration. These processes chemically alter the contaminant to produce a nonexplosive, hopefully inert, substance.

(2) Physical removal of contaminants. Washing, scraping, and vacuuming are examples of the processes which remove the contaminant unchanged. Waterjet technologies have been effective in removing surface contamination.

(3) Heat. These processes heat the article or piece of equipment to a level above the decomposition temperature of the contaminant and hold it there long enough to assure the largest mass is at that temperature, consuming contaminants by oxidation. For many building materials this means total destruction by burning.

(a) Historically, decontamination using heat literally meant building a bonfire under the article or piece of equipment to heat it "cherry red". Some installations have decontamination ovens or flashing furnaces designed to permit temperature control as a more positive means of assuring decontamination.

(b) Now, some contaminated waste processors originally designed to burn contaminated rags and paper are decontaminating nonporous articles or equipment. Hot gas decontamination provides similar levels of decontamination without exposing articles or pieces of equipment to direct flames.

b. A decontamination plan (see paragraph 14 and appendix b) may specify any process that is repeatable and verifiable for the contaminant(s). You may classify articles, pieces of equipment, or buildings subjected to processes 10a(1) and 10a(2) 5X only when every surface is visible and/or capable of being inspected or sampled and is thereby positively exposed to the removal agent. Where holes, blind spaces, rivets, cracks, etc., exist, washing or chemical cleaning alone is not usually effective in removing the contaminant. A situation can result where the surface appears decontaminated to visual examination and/or surface testing, but hazardous explosive contaminants remain hidden.

11. Special Cases. These cases present grave hazards because, generally, visual examination cannot identify contamination on the listed articles or pieces of equipment. You can decontaminate them to 5X only by heat unless otherwise specified.

a. Pipe.

(1) Explosive-carrying pipe. No amount of flushing, steaming, or "roto-rooting" can positively remove all contamination, and visual inspection cannot identify pipe interior contamination. NOTE: Only the use of a boroscope or similar device to inspect the pipe interior relaxes this absolute restriction on pipe.

(2) Pipes not carrying explosives, but passing through or located in a "presumed contaminated" area. Generally, pipes filled with inert material pose no threat of interior contamination, because the inert material blocks entry of explosive contamination. However, empty pipes may pose a problem if entry points exist in "presumed contaminated" areas. The clearest examples are dry-pipe sprinkler or deluge systems. Experience has shown that explosive material may migrate into these systems. You must consider any dry pipe system that protects an explosive operation to have interior explosive contamination. This includes all piping, valves, etc., from the nozzle back to the water valve.

b. Thick metal objects in a "presumed contaminated" area. There is no precise definition of the term "thick", but anything over 1 inch should be suspect. Many times in the casting of thick metal objects, subsurface voids form. Cracking in the area weakened by the void is likely. Cracks leading to voids and those voids can harbor hazardous quantities of contaminants. Only special testing can prove voids/cracks do not exist in thick metal objects.

c. Welded overlapping plates in a "presumed contaminated" area. Regardless of thickness, items containing overlapping welds may harbor hazardous contaminants in the area between the welds. Only heat processes decontaminate overlapping welds.

d. You must be aware of potential material incompatibilities when evaluating contaminants and developing decontamination plans, as these can create new hazards which are difficult to identify. Smooth metal resists most contaminants, but may

experience a chemical change which creates a hazard, as in the case of copper contacted by moist lead azide, which creates copper azide at the contact zone.

12. Marking.

a. Articles. You may wish to group small articles in a bin or other container and tag the container. Tag large articles individually. Follow the general guidance for equipment in paragraph 12b below.

b. Equipment. After the effective date of this pamphlet, you must tag each piece of equipment programed for layaway, going into modified caretaker status, or for disposal with DD Form 2271, Decontamination Tag, or equivalent. (See appendix C.) You need not tag idle production equipment until it falls in one of the preceding classes. Where exposed to extremes or weather outside, tags may require protection or frequent replacement to remain readable. Painting large equipment and buildings with the correct contamination status in a contrasting color may provide a further means of easy identification. In addition to the information required on the DD Form 2271, you must include the rationale for the assigned classification in the "Specific Instructions/Additional Information" block. Two examples follow.

(1) In this example, a piece of equipment came from a "presumed not contaminated" environment and received a 5X classification. The Specific Instructions/Additional Information block reads, "Presumed not contaminated; took off cover and visually examined exposed surfaces and air inlet/outlet. No contamination, all rules and special cases considered."

(2) In this example, a piece of equipment came from a "presumed contaminated" environment and received a 3X classification. The block reads, "Presumed contaminated; outer surfaces cleaned by water wash. Additional contamination may be present in bearings."

c. Buildings. You may classify buildings as a single unit or different bays and areas individually. Within a single bay, it is possible to have different classifications for different

areas (walls, ceilings, floors, barricades, etc.). For example, a bay may have 5X walls (interior covering removed, contaminants may be detected by visual examination but none was found) and 5X ceilings (smooth sealed surface, contaminants may be detected by visual examination but none was found), but only a 3X floor (large cracks may hide contaminants, visual inspection not effective).

13. Acceptable levels of decontamination.

a. Ongoing production. The acceptable decontamination level at the end of a production shift is 1X, defined as routine cleaning. Substantial surface contamination may remain, but it must not endanger knowledgeable personnel or the start of the next shift.

b. Maintenance of articles, pieces of equipment, and buildings.

(1) The minimum acceptable decontamination level for minor equipment adjustment is 1X. You may do minor disassembly to facilitate further decontamination. Local judgement will prevail when defining the term "minor". The immediate area around the disassembly point should be as clean as possible. You may do intraplant movement to facilitate further decontamination, provided you have written concurrence of the installation safety office (or their designee).

(2) The minimum acceptable decontamination level for routine maintenance, careful equipment disassembly (greater degree of disassembly than requiring 1X), etc., is 3X. Intra-plant movement requires no separate safety office approval. Do not subject these materials to welding, drilling, sawing, etc., or other processes that may generate enough heat to ignite residual contamination.

(3) The minimum acceptable decontamination level for unrestricted sawing, welding, drilling, etc., is 5X. You may transfer 5X-contaminated articles, pieces of equipment, or buildings to the general public for maintenance.

c. Disposal of articles, pieces of equipment, and buildings.

(1) The general public may buy or receive items classified as 5X or 0. These items are also safe for welding, sawing, or other heat-generating processes.

(2) The general public cannot buy or receive items classified as 3X. Knowledgeable Government installations or qualified buyers may buy and receive them. A qualified buyer is a person or company possessing a BATF explosive manufacturer's license. You may sell 3X-contaminated items to organizations or individuals who are not Government entities and do not possess a BATF license (usually scrap dealers) if:

(a) They have the proper facilities and detailed knowledge to safely store, handle, and disassemble 3X items, and decontaminate them to 5X.

(b) They agree to decontaminate the items to a 5X condition IAW with this guidance.

(c) They agree to provide an end-use certificate. (See appendix D.)

(d) They successfully pass an IOC Safety Division preaward survey (or the equivalent by the responsible entity or agency) verifying satisfaction of paragraph 13c(2)(a) above.

(3) Upon obtaining all permits and approvals, you may dispose of 3X-classified items in qualified landfills.

14. Decontamination plans.

a. Establishing a decontamination plan. The IOC Safety Division highly recommends a decontamination plan to organize large or complex decontamination efforts, establish duties and responsibilities, and provide traceable records. The parties responsible for the decontamination effort; i.e., the plant manager, commander, BATF license holder, etc., should approve the plan. The plan should include the appropriate information and details for the decontamination effort under consideration.

Standing operating procedures (SOPs), as part of or referenced in the decontamination plan, should cover routine decontamination for maintenance, cleanup of operations and equipment, and unusual events. For a short sample plan see appendix B.

b. Elements of a decontamination plan. Depending on the scope and requirements of the decontamination effort, the decontamination plan may contain the following or other elements:

(1) Specifics as to exactly what articles, pieces of equipment, and buildings the decontamination effort covers. (In the provided example, the plan is for the decontamination and marking of two specific buildings and all remaining articles and equipment.)

(2) References to the decontamination SOPs, technical documents, and maintenance procedures. (For example, SOP ABC-12 will cover decontamination of Acme loading machines contaminated with RDX and RDX containing explosives.)

(3) Methods and specific equipment used for decontamination. (In most cases, this information is already in an SOP, which may be a reference.)

(4) Assignment of duties and responsibilities to specific people or specified positions. (For example, John Brown or the installation safety officer will be the only individuals authorized to sign a DD Form 2271.)

(5) Knowledge, training, or skill requirements for personnel involved in the decontamination effort. (This would ordinarily include specific background requirements, SOP training, specific equipment training, and other similar things. This might also include Hazard Communication (HAZCOM), Right-to-Know, and other OSHA requirements.)

(6) Procedures addressing emergency actions and unusual events during decontamination. (This may already exist in SOPS.)

(7) Records and recordkeeping. Before starting decontamination, historical records characterize the potential for contamination and identify contaminants. Historical records may include hazard analyses, operating SOPS, information posted in the facility, individual knowledge, record drawings, installation histories, production records, and all other past and present information sources. After decontamination, records assure correct article, equipment, and building marking, and establish an audit trail for the future. (Filing the plan itself and copies of decontamination tags, drawings, SOPS, other procedures, and other information referenced in the plan may establish adequate records.)

Appendix A

Examples

These examples demonstrate a variety of decontamination situations and how the HQ, IOC, Safety Division views them. They are not meant to direct actions in any case, as local conditions will dictate the actual classifications.

1. A motor sitting in the same bay as the mixer it powers. The mixer is processing single base propellant.

a. Porous or not? In this case, the answer is nonporous.

b. Presumed contaminated? In this case, the answer is yes. The motor sat in the room with the mixer. Loading and unloading exposed mix ingredients. Furthermore, the mixer lid was removable during some portions of the cycle.

c. Is the contaminant readily visible? In this case, the answer is yes. Nitrocellulose is a white powdery substance. Single base mix is light tan.

d. Can a visual examination alone produce a 5X or 0 classification? In this case, the answer is no. Since the motor was presumed contaminated, the contaminant could be in hidden locations. Airborne contaminants may be drawn into the interior of the motor by cooling air and deposited within the motor. In this case, the burden of proof requires the inspector to prove what level of contamination exists.

NOTE: Could you tear down/disassemble the motor to expose those hidden locations? It may be possible. Whether or not this is an option for your situation depends on your confidence in seeing every surface. The cost of disassembly may not justify this action. If you try this, the metal portions of the motor would be subject to Crack Rule 1 and the thick-metal-object warning in paragraph 11b.

e. Remediation options and marking.

(1) To render the motor 5X, heat is the preferred method.

(2) To render it 3X, remove any outside contamination, practical, remove the outer housing and remove visible, easy-to-reach contamination.

2. A motor sitting in a separate motor room with a shaft running through a wall to the mixer. The mixer is processing single base propellant.

a. Porous or not? Nonporous.

b. Presumed contaminated? No. This motor was sitting in a separate motor room with a shaft running through a wall to the contaminated area.

c. Is the contaminant readily visible? Yes. Nitrocellulose is a white powdery substance. Single base mix is light tan.

d. Can a visual examination alone produce a 5X or 0 classification? In this case, the answer is yes. Because this motor is presumed not contaminated, visual inspection confirms that assumption, but does not prove all harmful contamination has been removed, as in example 1. This is a different burden of proof. Inspect the air intakes and exhaust for contaminant. Remove the motor housing and take a general look inside.

e. Remediation options and marking.

(1) If you find no contaminant, the motor needs no remediation. Mark the motor 0, never contaminated.

(2) If you find contamination, the "presumed not contaminated" category changes to "presumed contaminated", giving you the options listed in example 1.

3. A 2-inch by 4-inch by 8-foot wooden wall stud from a single base propellant mixer bay.

a. Porous or not? In this case, the answer is porous.

b. Presumed contaminated? Yes, this stud came from the wall of an explosive processing bay.

NOTE: If a nonporous material or finish covers the stud and no cracks/openings exist which provide access for contamination, you may treat this stud like the stud in example 4, presumed not contaminated.

c. Is the contaminant readily visible? Yes. Nitrocellulose is a white powdery substance. Single base mix is light tan.

d. Can a visual examination alone produce a 5X or 0 classification? Yes, you can inspect all surfaces.

e. Remediation options and marking. Cut off any contaminated portion. Mark the uncontaminated portion 0, never contaminated. Mark the contaminated portion 3X.

4. A 2-inch by 4-inch by 8-foot wooden wall stud from an inert part of a TNT processing building.

a. Porous or not? In this case, the answer is porous.

b. Presumed contaminated? No. This wall stud came from an inert part of an explosive processing building.

NOTE: Before presuming the stud is not contaminated because it came from an inert portion of the building, you must make sure the operation on the other side of the wall was also inert.

c. Is the contaminant readily visible? Yes, TNT is readily recognizable as tan-to-red granules or masses.

d. Can a visual examination alone produce a 5X or 0 classification? Yes, you can inspect all surfaces.

e. Remediation options and marking.

(1) If not contaminated, mark the stud 0, never contaminated.

(2) If you find contamination, the "presumed not contaminated" category changes to "presumed contaminated", giving you the options listed in example 3.

5. A 2-inch by 4-inch by 8-foot wooden wall stud from an inert part of an NG processing building.

a. Porous or not? In this case, the answer is porous.

b. Presumed contaminated? No, this wall stud came from an inert part of an explosive processing building.

NOTE: Before presuming the stud is not contaminated because it came from an inert portion of the building, you must make sure the operation on the other side of the wall was also inert.

c. Is the contaminant readily visible? No, when NG *is* absorbed in wood, it leaves no visible trace. (For a further discussion of this consideration, see paragraph 8.)

d. Can a visual examination alone produce a 5X or 0 classification? No.

e. Remediation options and marking. If any doubt exists, consider the stud contaminated and mark it 3X. Since there is no visual way to differentiate between contaminated and not contaminated, be on the safe side and consider it contaminated.

NOTE: There are exceptions to the "cannot see it, it is contaminated" rule. For example, if the wall stud came from a line office in a separate building, you could conclude there is a zero probability of explosive contamination and it should be marked 0.

6. A 2-inch by 4-inch by 8-foot wooden wall stud from an evenspeed bay processing double-based, solventless propellant.

a. Porous or not? In this case, the answer is porous.

b. Presumed contaminated? Yes, the stud came from an explosive process.

c. Is the contaminant readily visible? No, even though the propellant is readily detected, this process heats a NG-bearing material. NG, once absorbed in wood, leaves no visual evidence. (Historical research is essential in determining if this type of "hidden" hazard exists.)

d. Can a visual examination alone produce a 5X or 0 classification? No.

e. Remediation options and marking. Consider the stud contaminated and mark it 3X. There is no practical way to remove the NG and leave the stud intact.

7. A 155mm projectile body with Composition B (Comp B) fill, cleaned using a steam/water sumping process to reach at least a 3X condition.

a. Porous or not? In this case, the answer is nonporous.

b. Presumed contaminated? Yes, the projectile has obviously been contaminated with Comp B.

c. Is the contaminant readily visible? Yes, Comp B is easily recognizable as slightly waxy brownish granules or masses.

d. Can a visual examination alone produce a 5X or 0 classification? No. The closed nature of the projectile makes visual examination difficult. The threads and joints are areas where contamination can exist undetected. Additionally, parts of the projectile may be over 1-inch thick. (See paragraph 6c for the crack rules, paragraph 10b for the specific classification rationale, and paragraph 11b for the thick metal rule.)

e. Remediation options and marking.

(1) If the projectile body is for transfer or sale to a knowledgeable Government organization or qualified user, mark the projectile 3X and dispose of it without further remediation.

(2) If the projectile body is for transfer or sale to the general public, the projectile must undergo remediation to a 5X level of contamination. (For details in methods of remediation, see paragraph 10.)

8. A 105mm projectile body cut in half lengthwise and with the TNT fill cleaned out.

a. Porous or not? In this case, the answer is nonporous.

b. Presumed contaminated? Yes, the projectile has obviously been contaminated with TNT.

c. Is the contaminant readily visible? Yes, because the projectile is cut lengthwise, exposing all surfaces for visual inspection. TNT is easily recognizable as slightly tan-to-red granules or masses.

d. Can a visual examination alone produce a 5X or 0 classification? Yes, unless a part of the projectile body is over 1-inch thick. The thick metal rule will then apply.

e. Remediation options and marking.

(1) If all body parts are under 1-inch thick, mark the projectile 5X and transfer or sell without restrictions.

(2) If there are metal masses over 1-inch thick, mark the projectile 3X unless further remediation is done. (If the decontamination process is repeatable and verifiable for this projectile, and no contamination is found, the projectile can be classified 5X anyway.)

9. A 90mm cartridge case which has the propellant removed and the primer fired.

a. Porous or not? In this case, the answer is nonporous.

b. Presumed contaminated? Yes, the cartridge case has obviously been contaminated with propellant grains. The current visual inspection is to verify decontamination/demilitarization.

c. Is the contaminant readily visible? Yes, propellant is easily recognizable as regularly shaped grains, and it is obvious if the primer has fired.

d. Can a visual examination alone produce a 5X or 0 classification? Yes. The visual examination can verify the primer has fired and no propellant remains in the case.

e. Remediation options and marking. If the cartridge case contains no propellant and the primer has fired, mark it 5X and transfer or sell it without restrictions. Mark propellant contaminated cases 3X and handle, transfer, or sell them appropriately. Treat those cases with unfired primers as 1X, pending further remediation.

Appendix B

Sample Decontamination Plan

The following sample decontamination plan is a simple illustration of the elements outlined in paragraph 14.

1. This document is the Decontamination Plan for the decontamination and marking of detonator loading machines, associated equipment, and the bays in buildings 15 and 16 containing the machines. Current and past plant records indicate lead azide, primer mix (containing lead azide, lead styphnate, and tetracene), and RDX explosives contaminate these bays and machines.

2. Decontamination methods. Decontamination will take place in two steps:

a. Production personnel will clean all machines, associated equipment, and bays according to the regular cleaning requirements in SOP AA, Operation of Detonator Loading Machines, operations Q through S. The line supervisor will verify this cleaning.

b. After verification, the supervisor will turn over the bays and contents to the Decontamination Team responsible for any further cleaning and all marking according to SOP BB, Decontamination and Marking of Buildings and Equipment, operation A on lead azide, operation D on primer mix, and operation E on RDX. All personnel will use the tools and methods specified in SOP AA and SOP BB, and handle and dispose of all hazardous waste according to the requirements in SOP CC, Hazardous Waste Handling and Disposal.

3. Personnel. Only trained and qualified personnel will enter the decontamination areas.

a. Only production personnel fully trained in the proper operations of SOP AA, and familiar and accomplished at completing these tasks, will do the regular cleaning.

b. The Decontamination Team will consist of a member from the safety office who is familiar with detonator loading machines, knowledgeable of the contaminants and decontamination methods, trained in SOP BB, and who will act as team leader; one or more millwrights who regularly worked on detonator loading machines and specifically trained in decontamination methods and SOP BB; and one or more explosive operators specifically trained in decontamination methods and SOP BB. The Training Department will train all members of the Decontamination Team in the HAZCOM/Right-to-Know Program, the requirements of SOP CC, and SOP DD, Accidents, Incidents, and Emergency Operations.

C. The Maintenance, Engineering, Transportation, and Demolition Ground groups will support the Decontamination Team as required to complete the Decontamination Plan and prepare the loading machines for final disposal. The Training Department will train all personnel entering the decontamination areas in the applicable sections of SOP BB, SOP CC, and SOP DD.

4. Marking. After decontamination, the Decontamination Team will clearly mark the final contamination level on all equipment and bays/buildings.

a. Only the Decontamination Team leader (or his written designee) is authorized to determine contamination levels as defined by SOP BB and IOCP 385-1.

b. Personnel will mark large pieces of equipment and bays/buildings with large letters of clearly visible contrasting paint and attach a completed DD Form 2271. (See SOP BB, operation K for the appropriate marking directions and instruction on filling out the DD Form 2271.) Small pieces of equipment, piping, or groups of tooling need not be individually marked if they have the same level of contamination and the same destination. Group them in a properly marked container and attach the completed DD Form 2271.

c. Maintain file copies of the DD Form 2271s, any materials dealing with the decontamination effort, and the decontamination plan and appendices in a permanent file for future reference.

5. References and attachments.

a. Reference, IOCP 385-1, Classification and Remediation of Explosive Contamination.

b. Attachment 1, SOP AA, Operation of Detonator Loading Machines, operations Q through S.

c. Attachment 2, SOP BB, Decontamination and Marking of Buildings and Equipment, operation A on lead azide, operation D on primer mix, operation E on RDX, and operation K on marking.

d. Attachment 3, SOP CC, Hazardous Waste Handling and Disposal.

e. Attachment 4, SOP DD, Accidents, Incidents, and Emergency Operations.

Mr. Joe Bigshot
Plant Manager
3X Corporation, Inc.
Anywhere, USA

Appendix C

Decontamination Tags

A decontamination tag must contain the following information to be acceptable for marking articles, equipment, or buildings under paragraph 12. Attach one copy to the item and keep one copy in a permanent file.

1. The name of the installation, activity, or company.

2. A unique serial number.

3. The previous tag serial number (for a changed/replaced tag).

4. The level of contamination; i.e., 1X, 3X, 5X, or 0.

5. The completion date for the decontamination.

6. A short description of the article, equipment, or building.

7. The use of the article, equipment, or building and any serial number, model number, or similar identifier.

8. Contaminant(s) name(s).

9. Area or building where tagging was done.

10. Reason for decontamination; i.e., repair in place, move to _____ for _____, disposal, or other (explain).

11. The decontamination method used and the process controls.

12. The identifier for the SOP or decontamination plan used (number and/or title).

13. A brief rationale for the assigned classification.

14. Signature and date by both the person in charge of the decontamination and the inspector or safety representative.

Appendix D

End Use Certificate

An end use certificate, similar to the following, establishes that the qualified user (see paragraph 12) will properly handle and dispose of contaminated articles, equipment, and buildings. The qualified user will sign the end use certificate and impose a similar requirement on the transfer to another user of articles, equipment, or buildings not decontaminated to 5X.

It is hereby certified that (individual/company name) will comply with all applicable federal, state, and local ordinances and regulations with respect to the care, handling, storage, shipment, resale, export and other use of the material, hereby purchased, and that he/she as a user of, or dealer in, said materials, is capable of complying with all applicable federal, state, and local laws. This certification is made in accordance with and subject to the penalties of Title 18, Section 1001, of the United States Code, Crimes and Criminal Procedures.

(Signature), (Date)

Appendix B – Paint Sampling Plan

Sampling of paints was conducted in accordance with the enclosed Indiana Department of Environmental Management (IDEM) approved sampling plan to characterize the dry applied paints used in various structures and grouping of structures at INAAP.

SAMPLING PLAN

FOR APPLIED DRIED PAINTS
AT
THE INDIANA ARMY AMMUNITION PLANT
CHARLESTOWN, INDIANA

Prepared For:

Joint Munitions Command
Rock Island, IL

Prepared By:

MKM Engineers, Inc.
July 2003

Sampling Plan for Applied Dry Paints at the Indiana Army Ammunition Plant

1. Site Description.

The Indiana Army Ammunition Plant (INAAP) is located on 9,790 acres near Charlestown, Indiana, Clark County in southern Indiana. Since the 1940s, the INAAP has been used by the US Army to produce munitions charged with propellants and explosives. The INAAP has been declared as excess property by the Department of Defense. Structures within the Loading and Packing Area of INAAP are scheduled for thermal decontamination and demolition for reuse by the INAAP Land Reuse Authority (LRA). To properly manage the wastes produced by these efforts, the INAAP must accurately characterize the potential waste streams. The waste stream that is the subject of this plan is applied dry paints used in some of the facility structures.

The INAAP and it facilities were constructed in 17 months time and completed in 1942. Army ammunition plants were built in accordance with a set of uniform plans. From one plant and one structure to the next the design and materials used to construct the buildings varied little. For example, the Igniter Lines and Propellant Charge Lines at the INAAP, which are scheduled for demolition, were used to load, assemble and pack munitions and vary little from one line to the next. Further, the construction materials used were very consistent from one load line to the next or from one part of a load line to another part within the same load line. Site facilities consist of individual buildings or groups of buildings or structures. For example a load line consists of a number of similarly constructed structures connected by covered walkways that served as the production line for assembling munitions.

In the construction of the facilities paints were applied to the walls and the ceilings. The same paints were applied in and through out each structure or grouping of structures. The type of paint applied was based upon the type, location and function of the structure or item being painted. Thus, the walls and piping in a load line can contain several distinct but uniform types of paints, which can be differentiated by the paint color. Unlike a residential structure it can be said with certainty that when a paint type was selected for use it was used consistently through out the structure or grouping of structures for that particular purpose.

2. Goal.

The goal of this sampling plan is to achieve characterization of dry applied paints used in various structures and groupings of structures within the Loading, Assembly and Packing Load Lines at the INAAP. The paint samples will be analyzed prior to decontamination to determine the presence of Polychlorinated Biphenyls (PCBs) and if the applied dry paints, as wastes, are subject to regulation under 40 CFR 761. In addition, the paint samples will be analyzed for the eight (8) RCRA heavy metals to determine the potential combined loading with respect to NESHAPs emissions.

The regulations under 40 CFR 761, cover Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions. Historically, some industrial paint coatings were manufactured using PCB additives. Based upon the age of the facility, it is important to eliminate this potential prior to initiating thermal decomposition and demolition activities. It is not known nor suspected that any liquid PCBs were spilled or released onto the painted surfaces. Pursuant to 40 CFR 761 the INAAP will determine the PCB concentration in applied dry paints used on facility structures. 40 CFR 761.3 defines PCB Bulk Product Waste as waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal was $\geq$ 50 ppm. This definition further specifically lists "applied dry paints" as potential PCB Bulk Product Waste. 40 CFR 761.62 Disposal of PCB Bulk Product Waste states that when it is necessary to analyze wastes to make determinations on the PCB concentration Subpart R of 40 CFR 761 should be utilized. Subpart R envisions that the material to be sampled has been demolished and can be configured in one of several types of piles.

However, the US EPA Question and Answer September 2001 Guidance Manual indicates that EPA has not specified a procedure for collecting samples of applied dried paints prior to demolition of the painted surface. Further, this document suggests that the regional US EPA office be contacted for advice on sampling. This advice was sought during a similar sampling event at the Ravenna Army Ammunition Plant in October 2002 and approval of the sampling plan by the USEPA Region V TSCA group was received for that effort. This sampling plan for the INAAP has been modeled after the RVAAP approved sampling plan. Thus the goal of this sampling effort will be to identify the various paint types in use at the INAAP, collect representative samples of each type of paint and determine the PCB and RCRA heavy metals concentration in each paint type. Finally, these concentrations will be compared to the PCB Bulk Product Waste concentration characterization limit of $\geq$ 50 ppm and the paints will be characterized for regulation or non-regulation under 40 CFR 761.

3. Condition of Material to be Sampled.

As previously noted portions of the INAAP are scheduled for thermal decontamination and demolition to permit future reuse of the property by the LRA. As such these applied dry paints will be subject to open burn conditions and have the potential to cause emissions. Therefore, the painted surfaces will be characterized for proper disposal or recycling as applicable prior to thermal decontamination. In general, the existing structures are in good condition considering the overall age of the facility and the facility structures. However, the facility structures have not been used or maintained for a number of years. As such, the paint on the structures can be found to be both in good condition, still adhered to the walls or piping, and pealing or flaking.

4. Waste Classification.

The first step in the waste identification process was to identify the number and type of paint coatings and potentially different waste streams. This was accomplished by MKM

Engineers during a visual survey completed in June 2003. The survey identified the separate paint types, by color and use, within the structures or grouping of structures. The results of the survey identified that the walls, ceilings and piping were painted with the same paint and color. Two colors/types of paints were identified in-place in the INAAP LAP facilities. Based upon the site survey, these same paints were used universally throughout LAP area. The two paint types identified were grey and white and were used on walls and ceilings. These two colors of paint constitute the two potential waste streams for painted surfaces.

As follow-on to this survey, an attempt will be made to identify the relative percentage/amount of the two paint waste streams present in a structure or grouping of structures. This will be accomplished via hand measurement and surface area calculation or estimation supported via measurement to the extent practical. Where estimation is utilized this shall be defined and documented..

5. Sample Site Selection.

The identification and location of the two paint colors will be followed by sampling. In order to achieve a representative sample of each potential waste stream, 15 potential sample sites shall be identified for each of the two distinct paint types. These potential sample sites shall to the extent possible, be evenly distributed through out the structures or grouping of structures being surveyed. Due to the fact that the goal of this sampling effort is to characterize the applied dry paints, the potential sample sites will be identified based upon the presence of paint rather than on a random grid selection process. Potential sample sites shall be at least 1 meter apart unless the amount of painted surface per color and use does not allow such spacing. The potential sampling sites, to the extent possible, will also be evenly distributed through out the structures or grouping of structures being sampled. If the available sample site surface does not allow for the 1-meter spacing, the potential sample sites shall be evenly spaced. Each sample site shall be marked with a paint color location type and number designation such as grey, wall, #1 and so on beginning at one end of the structure or pipe and continuing down the length of the structure or pipe assigning numbers sequentially. From the 15 potential sample sites, 5 sample sites shall be randomly selected and sampled for each paint color. The 15 potential sites shall be divided into 3 groups of 5 potential samples sites (1-5), (6-10) and (11-15). One sample site shall be randomly selected from potential sample site group (1-5). Two sample sites shall be randomly selected from potential sample site group (6-10) and 2 sample sites shall be randomly selected from potential site group (11-15).

The following tables/examples illustrate the above described sample site selection process.

1. Visual Survey LAP Load Lines. (Example paint colors and locations)

Grey/Wall	Grey/Pipe	White/Wall	White/Pipe

2. Identification of Potential Sample Sites using Grey/Wall as an example. (Each potential waste stream will go through the same process.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

3. Division of Potential Sample Sites for Grey/Wall into 3 Groups of 5 Each.

1,2,3,4,5	6,7,8,9,10	11,12,13,14,15,

4. Random Selection of Grey/Wall Paint Sample Sites. 1 from Group 1-5, 2 from Group 6-10 and 2 from Group 11-15.

1,**2**,3,4,5	6,**7**,8,9,**10**	**11**,12,13,14,**15**

5. Sample Randomly Selected Grey/Wall Paint Sites

2	7	10	11	15

6. Composite Collected Grey/Wall Paint Samples

2,7,10,11,15

7. Thoroughly Mix the Composited Grey/Wall Paint Sample and Remove Sample to be Submitted to Lab

6. Sample Collection.

Following identification of the sample sites, a sample aliquot shall be collected from each site and composited with the other samples collected for that distinct paint color and type. Each sample shall be collected by manually removing the paint with a metal scraper from a defined area to facilitate the proper sample volume for analysis. The paint will be removed, to the extent practical, down to the bare surface. Samples will be collected and placed into a sample container. Each sample collected from a sample site shall consist of approximately the same amount of removed applied dry paint. Following collection of all five samples the resulting composite shall be completely and thoroughly mixed. From the

resulting composite an appropriate sub-sample volume shall be removed, placed in laboratory-supplied sample containers approved for shipment of the sample and sent to the analytical laboratory for chemical analysis for PCBs and the (8) RCRA Metals. The remaining composite sample material will be retained onsite, should additional sample be required by the laboratory.

Following collection of the composite samples a separate sample site will be chosen randomly from the remaining ten (10) sample sites for each waste stream. A sample shall be collected from each of these sites consisting of the applied dry paint, removed down to the bare surface, from an area equivalent to 30 square centimeters. This sample shall be weighed and the result used to calculate the approximate amount/percentage of each analyte within each of the paint colors present in the facility being sampled. This sample will be retained for quality control purposes.

7. Laboratory Analysis.

The laboratory shall use Method 3500B/3550B from EPA's SW-846 Test Methods for Evaluating Solid Waste for chemical extraction of PCBs from the composite samples. Following which, Method 8082 from SW-846 shall be used to analyze these extracts for PCBs followed by Mass Spectrophotometry confirmation using Method 8270. In addition, Methods 6000/7000 will be used from USEPA's SW-846 Test Methods to analyze the samples for the (8) RCRA Metals. Sample analysis will be conducted in accordance with the laboratory standard operating procedures and SW-846.

8. Results Reporting.

Each composite sample will be analyzed as stated above with the results reported as parts per million (ppm) by weight on a dry weight basis. The data packages will comprise a CLP-like deliverable and will be validated prior to interpretation.

9. Results Analysis.

Any sample concentration of $\geq$ 50 ppm shall result in the corresponding waste stream being designated as PCB Bulk Product Waste and subject regulation under 40 CFR 761. The lead and combined NESHAPs metals concentrations will be evaluated in accordance with the Indiana Department of Environmental Quality Air Compliance Branch requirements. These results will be reported in a letter report to the JMC BRAC for review and comment. After receipt and/or incorporation of any comments, a final report will be prepared and 6 copies will be submitted to JMC BRAC Technical Support Office for distribution.

Appendix C – Analytical Results of Paint Sampling

Analytical results of dry applied paint samples analyzed to determine the concentrations of Polychlorinated Biphenyls (PCBs) and eight (8) RCRA heavy metals.

WATER & WASTEWATER LABORATORIES, INC.

Client: MKM Engineers
Address: 8451 State Rt. #5, bldg #1038
Ravenna, Ohio 44266

Report Date: September 11, 2003
P.O. #: verbal

Attention: Rick Callahan

ID: mk01

Column #	Sample Description	Sample Date	Recd. Date	Sample #
#1	ILP-WP-GR-001-WC	8/26/2003	9/3/03	**03-2582**
#2	ILP-WP-WH-001-WC	8/26/2003	9/3/03	**03-2583**
#3	ILP-WP-GN-001-WC	8/26/2003	9/3/03	**03-2584**

Polychlorinated biphenyls(PCB's)	Result #1	Result #2	Result #3	Det Limit (PQL)
Aroclor-1016	ND	ND	ND	10
Aroclor-1221	ND	ND	ND	10
Aroclor-1232	ND	ND	ND	10
Aroclor-1242	ND	ND	ND	10
Aroclor-1248	ND	ND	ND	10
Aroclor-1254	ND	ND	ND	10
Aroclor-1260	ND	ND	ND	10
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg

Surrogates	% Recovery	% Recovery	% Recovery	Acceptable Recovery
Decachlorobiphenyl	106	103	107	
Tetrachloro-m-xylene	46	23	36	

nd = Not Detected (Concentration is below the Practical Quantitation Limit-PQL)
ug/L = micrograms per Liter(ppb) mg/Kg = milligrams per Kilograms(ppm) mg/L = milligrams per Liter(ppm)
Analytical Method: EPA 608

Analysis Certified By: _____ Laboratory Manager
John Ondo

2779 Rockefeller Avenue • Cleveland, Ohio 44115 • (216) 696-0280 • FAX (216) 696-6831

WATER & WASTEWATER LABORATORIES, INC.

Client: MKM Engineers
Address: 8451 State Rt. #5, bldg #1038
Ravenna, Ohio 44266

Report Date: September 11, 2003
P.O. #: verbal

Attention: Rick Callahan

ID: mk01

Column #	Sample Description	Sample Date	Recd. Date	Sample #
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#2	ILP-WP-WH-001-WC	8/26/2003	9/3/03	**03-2583**
#3	ILP-WP-GN-001-WC	8/26/2003	9/3/03	**03-2584**

Quality Control:

			MS	MSD	RPD
PCB	**Blank**	**LCS**	Sample#		
Aroclor-1016	ND	-	-	-	-
Aroclor-1221	ND	-	-	-	-
Aroclor-1232	ND	-	-	-	-
Aroclor-1242	ND	-	-	-	-
Aroclor-1248	ND	-	-	-	-
Aroclor-1254	ND	-	-	-	-
Aroclor-1260	ND	113%	101%	106%	5%
Units	mg/Kg	% Recovery	% Recovery	%Recovery	%
Surrogates					
Decachlorobiphenyl	118	126	106	108	
Tetrachloro-m-xylene	71	87	49	52	
Units	% Recovery	% Recovery	% Recovery	%Recovery	

LCS = Laboratory Control Sample
MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ug/L = micrograms per Liter(ppb) mg/Kg = milligrams per Kilograms(ppm) mg/L = milligrams per Liter(ppm)
Analytical Method: SW846-8082

Analysis Certified By: J. Ondo
John Ondo
Laboratory Manager

2779 Rockefeller Avenue • Cleveland, Ohio 44115 • (216) 696-0280 • FAX (216) 696-6831

WATER & WASTEWATER LABORATORIES, INC.

Client: MKM Engineers
Address: 8451 State Rt. #5, bldg #1038
Ravenna, Ohio 44266

Report Date: September 11, 2003
P.O. #: verbal

Attention: Rick Callahan

ID: mk01

Column #	Sample Description	Sample Date	Recd. Date	Sample #
#1	ILP-WP-BL-001-WC	8/26/2003	9/3/03	**03-2585**
#2	ILP-PP-RD-001-WC	8/26/2003	9/3/03	**03-2586**
#3	ILP-PP-BL-001-WC	8/26/2003	9/3/03	**03-2587**

Polychlorinated biphenyls(PCB's)	Result #1	Result #2	Result #3	Det Limit (PQL)
Aroclor-1016	ND	ND	ND	10
Aroclor-1221	ND	ND	ND	10
Aroclor-1232	ND	ND	ND	10
Aroclor-1242	ND	ND	ND	10
Aroclor-1248	ND	ND	ND	10
Aroclor-1254	ND	ND	ND	10
Aroclor-1260	ND	ND	ND	10
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg

Surrogates	% Recovery	% Recovery	% Recovery	Acceptable Recovery
Decachlorobiphenyl	109	116	111	
Tetrachloro-m-xylene	38	26	33	

nd = Not Detected (Concentration is below the Practical Quantitation Limit-PQL)
ug/L = micrograms per Liter(ppb) mg/Kg = milligrams per Kilograms(ppm) mg/L = milligrams per Liter(ppm)
Analytical Method: EPA 608

Analysis Certified By: J. Ondo
John Ondo
Laboratory Manager

2779 Rockefeller Avenue • Cleveland, Ohio 44115 • (216) 696-0280 • FAX (216) 696-6831

WATER & WASTEWATER LABORATORIES, INC.

Client: MKM Engineers
Address: 8451 State Rt. #5, bldg #1038
Ravenna, Ohio 44266

Report Date: September 11, 2003
P.O. #: verbal

Attention: Rick Callahan

ID: mk01

Column #	Sample Description	Sample Date	Recd. Date	Sample #
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#2	ILP-PP-RD-001-WC	8/26/2003	9/3/03	**03-2586**
#3	ILP-PP-BL-001-WC	8/26/2003	9/3/03	**03-2587**

Quality Control:

			MS	MSD	RPD
PCB	**Blank**	**LCS**	Sample#		
Aroclor-1016	ND	-	-	-	-
Aroclor-1221	ND	-	-	-	-
Aroclor-1232	ND	-	-	-	-
Aroclor-1242	ND	-	-	-	-
Aroclor-1248	ND	-	-	-	-
Aroclor-1254	ND	-	-	-	-
Aroclor-1260	ND	113%	101%	106%	5%
Units	mg/Kg	% Recovery	% Recovery	%Recovery	%
Surrogates					
Decachlorobiphenyl	118	126	106	108	
Tetrachloro-m-xylene	71	87	49	52	
Units	% Recovery	% Recovery	% Recovery	%Recovery	

LCS = Laboratory Control Sample
MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ug/L = micrograms per Liter(ppb) mg/Kg = milligrams per Kilograms(ppm) mg/L = milligrams per Liter(ppm)
Analytical Method: SW846-8082

Analysis Certified By: J. Ondo
John Ondo
Laboratory Manager

2779 Rockefeller Avenue • Cleveland, Ohio 44115 • (216) 696-0280 • FAX (216) 696-6831

WATER & WASTEWATER LABORATORIES, INC.

Client: MKM Engineers
Address: 8451 State Rt. #5, bldg #1038
Ravenna, Ohio 44266
Attention: Rick Callahan

Report Date: September 12, 2003
P.O. #: verbal

Column #	Sample Description	Sample Date	Recd. Date	Sample #
#1	ILP-WP-GR-001-WC	8/26/2003	9/3/03	**03-2582**
#2	ILP-WP-WH-001-WC	8/26/2003	9/3/03	**03-2583**
#3	ILP-WP-GN-001-WC	8/26/2003	9/3/03	**03-2584**
#4				
#5				

Parameter	#1	#2	#3	#4	#5	Units	Method	Analyst	Date Analy
Total Metals						-	4.1.3		
Barium	5	1	<1			mg/Kg	208.1	CA	9/11/2003
Cadmium	89.5	174	46.8			mg/Kg	213.1	CA	9/11/2003
Total Chromium	15.8	12.6	11.3			mg/Kg	218.1	CA	9/11/2003
Lead	12,900	13,400	9,400			mg/Kg	239.1	CA	9/11/2003
Silver	1	1	<1			mg/Kg	272.1	CA	9/11/2003
Arsenic	0.46	2.01	11.0			mg/Kg	206.3	CA	9/11/2003
Mercury	0.14	0.60	<0.05			mg/Kg	245.1	CA	9/12/2003
Selenium	0.17	0.86	1.59			mg/Kg	270.3	CA	9/11/2003

Unit Desc: mg/L = milligrams per liter (ppm), ug/L = micrograms per liter (ppb), mg/Kg = milligrams per Kilograms (ppm)
Std = Standard pH units, ng/L = nanograms per liter (ppt)

Analysis Certified By: _____ Laboratory Manager
John Ondo

2779 Rockefeller Avenue • Cleveland, Ohio 44115 • (216) 696-0280 • FAX (216) 696-6831

WATER & WASTEWATER LABORATORIES, INC.

Client: MKM Engineers
Address: 8451 State Rt. #5, bldg #1038
Ravenna, Ohio 44266
Attention: Rick Callahan

Report Date: September 12, 2003
P.O. #:

Column #	Sample Description	Sample Date	Recd. Date	Sample #
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#2	ILP-PP-RD-001-WC	8/26/2003	9/3/03	03-2586
#3	ILP-PP-BL-001-WC	8/26/2003	9/3/03	**03-2587**
#4				
#5				

Parameter	#1	#2	#3	#4	#5	Units	Method	Analyst	Date Analy
Total Metals						-	4.1.3		
Barium	13	1	32			mg/Kg	208.1	CA	9/11/2003
Cadmium	12.2	130	14.8			mg/Kg	213.1	CA	9/11/2003
Total Chromium	80.4	44.6	15,200			mg/Kg	218.1	CA	9/11/2003
Lead	9,600	29,700	1,200			mg/Kg	239.1	CA	9/11/2003
Silver	<1	1	<1			mg/Kg	272.1	CA	9/11/2003
Arsenic	0.07	0.48	12.3			mg/Kg	206.3	CA	9/11/2003
Mercury	0.09	0.08	0.14			mg/Kg	245.1	CA	9/12/2003
Selenium	<0.05	0.23	0.10			mg/Kg	270.3	CA	9/11/2003

Unit Desc: mg/L = milligrams per liter (ppm), ug/L = micrograms per liter (ppb), mg/Kg = milligrams per Kilograms (ppm)
Std = Standard pH units, ng/L = nanograms per liter (ppt)

Analysis Certified By: _____ Laboratory Manager
John Ondo

2779 Rockefeller Avenue • Cleveland, Ohio 44115 • (216) 696-0280 • FAX (216) 696-6831

Chain of Custody Record

Site Name / Project Number: INAAP / 02-02-0050

Site Address / Project Name: INDIANA ARMY AMUNITION PLANT / CHARLESTOWN, IN

Sampler (print name-sign below): VIJAY CHENNOJU

(Lab Use): 03/2582 - 2587

Water & Wastewater Laboratories, Inc.
2779 Rockefeller Avenue
Cleveland, Ohio 44115
Phone:(216)696-0280
Fax:(216)696-6831

Sample Date	Sample Time	Comp.	Grab	Sample Location/site ID	Number of Containers	PCB's	RCRA (8) METALS TOTAL	Sample Comments
08/26/03	16:05	X		ILP-WP-GR-001-WC	1			Wall Paint, Grey Color
08/26/03	16:30	X		ILP-WP-WH-001-WC	1			Wall Paint, White Color
08/26/03	12:40	X		ILP-WP-GN-001-WC	1			Wall Paint, Green Color
08/26/03	12:30	X		ILP-WP-BL-001-WC	1			Wall Paint, Blue Color
08/26/03	16:30	X		ILP-PP-RD-001-WC	1			Pipe Paint, Red Color
08/26/03	16:25	X		ILP-PP-BL-001-WC	1			Pipe Paint, Blue Color

Relinquished by: (signature)	Date/Time:	Received by: (signature)
	8/29/03 8:20	
Relinquished by: (signature)	Date/Time:	Received by: (signature)
	9/3/03 1140	(LAB)
Relinquished by: (signature)	Date/Time:	Received by: (signature)
Relinquished by: (signature)	Date/Time:	Received by: (signature)

Comments:

Appendix D – USFWS Concurrence Memo

USFWS Concurrence Memo dated 29 May 2003 listing provisions that shall be adhered to in support of the proposed decontamination action.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

BLOOMINGTON FIELD OFFICE (ES)
620 South Walker Street
Bloomington, IN 47403-2121
(812) 334-4261 FAX (812) 334-4273

May 29, 2003

Kerry R. Dupaquier
Acting Commander's Representative
Department of the Army
Indiana Army Ammunition Plant
11450 Highway 62
Charlestown, IN 47111-9667

Dear Mr. Dupaquier:

This letter is the U.S. Fish and Wildlife Service's (Service) response to your letter (dated May 8, 2003) for review and concurrence on the potential impacts of activities at the Indiana Army Ammunition Plant (INAAP) on the Federally-endangered gray bat (*Myotis grisescens*). Specifically, the proposed project involves the explosive desensitization of 326 select "items" (buildings) at INAAP. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) and are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, as amended (ESA), and Service Mitigation Policy.

INAAP's Endangered Species Management Plan and Environmental Assessment for the Gray Bat, *Myotis grisescens* (ESMP) details management prescriptions for activities at INAAP that may impact the gray bat. Prescriptions are designed to protect gray bat habitat through protection of water quality, karst features, and maintenance of foraging and travel corridors. The report on proposed activities (**Explosive Desensitization of Select Buildings at the Indiana Army Ammunition Plant, Clark County, Indiana**) does not specifically address these protective prescriptions, but we assume that the provisions of the ESMP will be followed. Specific provisions pertinent to the proposed activity include:

1) Prohibit any disturbance of forest cover in the Jenny Lind Run and Little Battle Creek drainages.

2) In drainages on the installation other than Jenny Lind Run and Little Battle Creek, prohibit any disturbance of forest cover within 100 ft (30 m) of a perennial stream or within 50 ft (15 m) of an intermittent stream.

3) Prohibit earth-moving activities and disturbance of natural vegetation within 100 ft (30 m) of any karst feature at INAAP.

4) When major earth-moving activities are conducted more than 100 ft (30 m) from a karst feature but still within the drainage area of the karst feature, ring and stake the area of activity with silt fencing and hay bales, respectively, to control erosion and prevent debris from entering the karst feature.

We are particularly concerned with the protection of the integrity of all karst features in the Jenny Lind Run drainage, as well as protection of water quality draining into these features. The cave system in this drainage is known to support gray bats.

The report provided did not detail the level of ground disturbance that would be required to prepare firebreaks around buildings to be burnt. The text of the report indicates that "a minimum of a 100-ft zone surrounding the site will be cleared of excessive vegetation (mowed)." However, the picture accompanying the text shows a bulldozer preparing bare-earth firebreaks with the caption: "Preparation of Firebreaks around Buildings/Areas to be Burnt." If earth-moving is to occur, it is important that setbacks from karst features are observed. Further, an erosion control plan needs to be in place prior to the preparation of firebreaks to ensure that sedimentation does not reach streams or karst features on the facility.

Provided that all provisions of the ESMP are followed and adequate erosion control measures are implemented, this precludes the need for further consultation on the proposed project, as required under Section 7 of the ESA. However, if new information on endangered species at the site becomes available or if project plans are changed significantly, please contact our office for further consultation.

We appreciate the continued cooperation of the staff at INAAP in addressing endangered species concerns on the installation. If you have any questions please contact Lori Pruitt at (812) 334-4261, extension 211.

Sincerely yours,

Scott E. Pruitt
Field Supervisor

Appendix E – Programmatic Agreement

The following Programmatic Agreement between the Department of the Army and the Indiana State Historic Preservation Officer for the Disposal of Lands and Facilities at the Indiana Army Ammunition Plant.

PROGRAMMATIC AGREEMENT BETWEEN THE DEPARTMENT OF THE ARMY AND THE INDIANA STATE HISTORIC PRESERVATION OFFICER FOR DISPOSAL OF LANDS AND FACILITIES AT THE INDIANA ARMY AMMUNITION PLANT

WHEREAS, the United States Department of the Army (Army) has declared that all lands and facilities at the Indiana Army Ammunition Plant (INAAP) are excess to its mission; and

WHEREAS, the Army proposes to dispose of all lands and facilities which will result in loss of land and buildings through demolition, lack of maintenance, or sale/transfer; and

WHEREAS, the Parties to this Programmatic Agreement (agreement) are the signatories, the U.S. Army, and the Indiana State Historic Preservation Officer (SHPO), , and the concurring parties to the agreement include the INAAP Reuse Authority and the Indiana Department of Natural Resources, Division of State Parks and Reservoirs; and

WHEREAS, the Army has determined through the 36 CFR 800.4(b)(1) process and in consultation with the SHPO that a majority of the buildings and structures at INAAP are eligible for the National Register of Historic Places (NRHP) under Criteria A for their contribution to WWII from 1940-1945 (INAAP Historic District). Specifically, INAAP was critically important in supplying propellant explosives for the war effort and was the prototypical ordnance works that was used as a model for the design and operation of other Government-Owned, Contractor Operated (GOCO) installations. INAAP also represents the distinctive characteristics of World War II permanent military construction (Criterion C). Its design and construction are emblematic of World War II mobilization factory design; and

WHEREAS, the SHPO determined that the 49 River Ridge housing units at INAAP (Building numbers 2701 - 2749), a nearby tan tile bungalow (Building 2734) and an unnumbered one room 19th century brick building behind Building 2720 were ineligible for the NRHP; and

WHEREAS, the Army, in consultation with the SHPO, has determined that no INAAP buildings, structures, or objects dating to the Cold War meet the criteria of exceptional significance applicable to properties less than 50 years in age; and

WHEREAS, the terms of this agreement apply to an Army action to dispose of INAAP by transfer of approximately 3,886 acres to the State of Indiana, (comprising the Charlestown State Park currently leased from INAAP (1,125 acres) and an additional approximately 2,761 acres that will be added on to the park) and approximately 5,904 acres to the INAAP Reuse Authority(RA) for economic development. All INAAP buildings and lands will be affected by this undertaking; and

WHEREAS, for purposes of this agreement, the area of potential effects (APE) (36 CFR 800.16[d]) is the area within the installation boundaries (Attachment 1). Once the undertaking is complete, all structures and land within the APE will no longer be under Federal control; and

WHEREAS, the Army has determined by application of 36 CFR 800.5(a)(1) and (2), that disposal of INAAP properties will have an adverse effect on the INAAP Historic District and archeological resources eligible for inclusion in the NRHP and has consulted with the SHPO, the Council, and Native American Tribes in accordance with (IAW) Section 106 of the National Historic Preservation Act, 16 U.S.C. 470 et seq (NHPA) and its implementing regulation (36 CFR Part 800); and

WHEREAS, INAAP's baseline archeological overview produced by the National Park Service under contract with the HQ, Army Materiel Command in the mid-1980s determined that actions around buildings will not affect archeological resources due to the disturbance of surface deposits in the immediate area of buildings during construction; and

WHEREAS, the Army has initiated phased identification per 36 CFR 800.4(b)(2) to identify NRHP eligible historic/prehistoric archeological sites in the RA area (Attachment 2). An archaeological survey and report has recently been completed on 920 acres and another survey covering approximately 3,500 acres is in progress; and

WHEREAS, the IDNR, Division of State Parks and Reservoirs (ISPR) is bound by State law to protect archaeological resources; therefore, a determination of no historic properties affected is concluded for all the potential archaeological sites contained in the parcel to be transferred to the ISPR; and

WHEREAS, Section 2843 of the Military Construction Authorization Act for fiscal year 1999 authorized the transfer

of 4,660 acres to the RA. The RA is not proposing to establish and implement alternatives for adaptive use of historic properties on this parcel; and

WHEREAS, IAW Section 111 of the NHPA, for the remaining approximately 1,244 acres being disposed to the RA, INAAP has encouraged the RA to establish and implement alternative adaptive uses of the historic properties present. The Army has provided, and will continue to provide, information to the RA, per Section 112(b) of the NHPA, to promote and encourage the protection of the historic structures they will obtain; and

WHEREAS, in accordance with 36 CFR 800.14(b)(2)(ii), interested members of the public and the RA have been invited and provided an opportunity to comment on the effects that this disposal action may have on historic and prehistoric properties found within INAAP; and

WHEREAS, the Advisory Council on Historic Preservation was notified of the undertaking in accordance with 36 CFR 800.6(a)(1) and determined that it would not participate in the consultation; and

WHEREAS, this agreement supersedes a 25 September 1992 Memorandum of Agreement Between the Army, the SHPO, and the Council Concerning Disposal of an 859 Acre Portion of Indiana Army Ammunition Plant and Deactivation of the Remainder of Indiana Army Ammunition Plant.

NOW, THEREFORE, the Army and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations, which will satisfy the Army's Section 106, 110, and 111 responsibilities for total disposal of INAAP facilities and underlying land.

Stipulations

The Army will carry out the following measures.

I. TREATMENT AND MANAGEMENT

A. Utilization and disposal of land parcels to the State of Indiana.

The ISPR; as the recipient of approximately 3,886 acres of INAAP lands, agrees to:

1. Prepare a Cultural Resource Management Plan (CRMP), in accordance with the standards outlined in Attachment 3, within five years after the signing of this document; and

2. Provide copies of the draft CRMP to the SHPO for review and approval, and resolve any objections or questions about the draft raised by the SHPO through consultation; and

3. Upon approval of the draft CRMP by the SHPO, finalize and implement the CRMP; and

4. In the interim between conveyance of the parcel and implementation of the CRMP, comply with Indiana law on historic preservation and archeology; and

5. Utilize persons meeting, at a minimum, the applicable requirements set forth in the Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61) and Indiana 312 IAC 21 in the preparation of the CRMP and in supervising the conduct of any survey, data recovery work, or other historic preservation activity needed to carry out the terms of this agreement.

B. Disposal of Parcels to the INAAP RA.

1. Prior to the disposal of buildings, structures, and land to the INAAP RA, and within two years of the last signature date of this agreement, the Army will provide the SHPO and/or deposit through arrangement with local and/or state libraries, schools or universities, in consultation with SHPO; copies of the following eight (8) cultural resources documents pertaining to INAAP and a minimum of 50 large format photos of INAAP. This documentation will serve as mitigation for all adverse effects on all INAAP World War II era buildings and structures resulting from the disposal. Documents for public dissemination will not contain information regarding the nature, location, character, and ownership of archeological sites, burial grounds, and cemeteries in accordance with Section 304 of the National Historic Preservation Act, 36 CFR 800.6(a)(5), and 36 CFR 800.11(c).

i. *An Archeological Overview and Management Plan for the Indiana Army Ammunition Plant, Clark County, Indiana, 1984*. National Park Service, prepared by Woodward-Clyde Consultants. This report will be supplied only to the SHPO due to sensitive archeological site location information contained within the report.

ii. HABS/HAER Inventory cards, Indiana Army Ammunition Plant. Prepared for the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER), 1983. National Park Service, prepared by MacDonald and Mack Partnership.

iii. *Historic Properties Report, Indiana Army Ammunition Plant, Charleston, Indiana, 1984*. National Park Service, prepared by MacDonald and Mack Partnership.

iv. *Historic Context for the World War II Ordnance Department's Government-Owned Contractor-Operated (GOCO) Industrial Facilities, 1939-1945, 1995*. U.S. Army Corps of Engineers, prepared by Geo-Marine Inc.

v. *The World War II Ordnance Department's Government-Owned Contractor-Operated (GOCO) Industrial Facilities: Indiana Army Ammunition Plant Historic Investigation, 1995*. U.S. Army Corps of Engineers, prepared by Geo-Marine Inc.

vi. *Supplemental Photographic Documentation of Archetypal Buildings, Structures, and Equipment for U.S. Army Materiel Command, National Historic Context for World War II Ordnance Facilities; Indiana Army Ammunition Plant, 1994*. U.S. Army Corps of Engineers, prepared by Geo-Marine Inc.

vii. *The World War II Ordnance Department's Government-Owned Contractor-Operated (GOCO) Industrial Facilities: Indiana Army Ammunition Plant Transcripts of Oral History Interviews, 1996*. U.S. Army Corps of Engineers, prepared by Geo-Marine Inc.

viii. Myers, T. 1992. "Historic Context: The Indiana Army Ammunition Plant, 1940 to 1945." In *Indiana Army Ammunition Plant Cultural Resource Management Plan*, edited by D.E. Peter, S.P. Austin, M.B. Cliff, and J. Freeman, Appendix J. Geo-Marine, Inc., Plano, Texas. Report submitted to the U.S. Army Corps of Engineers, Fort Worth District.

2. In the event that NRHP eligible archeological sites are identified during survey efforts at INAAP, any such sites on lands that are to be transferred out of Federal ownership will be treated in accordance with Indiana law, including, but not limited to: IC 14-21-1, IC 14-21-2, IC 14-21-3, IC 35-43, 312 IAC 21, and 312 IAC 22. This is to ensure the protection of

such sites in perpetuity. Prior to transfer of NRHP eligible archeological sites, the Army will provide archeological site locations to the INAAP RA and the ISPR and written notification of their responsibilities under the above statutes and rules. The INAAP RA will notify any subsequent landowners, and involved developers, of the archeological site locations and their responsibilities under Indiana law. In order to afford protection to the sites, the INAAP RA and ISPR will not publicly disclose specific locations of the sites except to landowners or those directly involved in developing the affected property.

C. Utilization of Plant prior to disposal.

1. Until the property is conveyed or until such time as those mitigation measures delineated in I.B.1 above have been completed and accepted in writing by the SHPO, the Army will comply with Section 106 of the National Historic Preservation Act and 36 CFR 800 with respect to any undertaking it proposes to carry out or permit on INAAP. The only exemptions to this policy are those actions listed in Attachment 4.

2. Treatment of historic buildings and structures:

a. Army will not dispose of or allow building modifications or alterations until the Army has completed all required mitigation measures listed in I.B.1 above or has confirmed, in consultation with the SHPO, that these efforts will not prevent the Army from meeting the terms of this agreement or the Army shall separately coordinate the undertaking as an independent action in accordance with 36 CFR 800, and

b. Army may enter into a contract or other agreement that requires use of buildings for government purposes or may lease buildings for non-government purposes until they are disposed from government ownership, provided that the Army consults with the SHPO for all proposed undertakings in accordance with 36 CFR 800 or has completed required mitigation measures listed in I.B.1 above. The only exemptions to this policy are those actions listed in Attachment 4.

c. Following completion of the mitigation measures listed in I.B.1. above and their acceptance in writing by the SHPO, the Army, INAAP RA or ISPR may lease, dispose, modify, renovate, or demolish as deemed necessary those buildings and structures that make up the INAAP historic district.

3. Treatment of land and NRHP eligible archeological sites:

a. Where an archeological survey that has been conducted by professionals is acceptable to the SHPO, the Army may then proceed with the ground disturbing activity in an area(s) that lack(s) NRHP eligible properties; and

b. On land where an archaeological survey is warranted but has not been conducted, the Army will conduct in consultation with the SHPO such a survey prior to a planned ground-disturbing action being allowed to proceed. The survey will be conducted according to the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, current Indiana code, and the most recent guidebook for archeological sites inventory and evaluation work in Indiana. If no eligible sites are found, the Army will follow the procedures outlined in Section I.C.3.a above. If NRHP eligible sites are located within the area to be disturbed, the Army will take one of the following actions:

i. Avoid the NRHP eligible archeological site(s). The Army will submit all applicable documentation to the SHPO, including Army's means for avoiding eligible site(s) and adverse effect(s), for review and approval; or

ii. Where disturbance of a NRHP eligible property is unavoidable, the Army will follow the Council's guideline 'Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites' to resolve adverse effects.

c. Actions by the Army or others that will not require archeological surveys or review by the SHPO are listed in Attachment 4.

d. Archeological collections from INAAP will be curated in an institution meeting the standards specified for Federal collections in 36 CFR 79. The Army will make a good faith effort to place these collections with an Indiana curation center that meets these standards.

4. Army will continue to assign an individual at INAAP as Cultural Resource Manager (CRM) until all NRHP eligible property at INAAP is transferred. CRM duties include tracking and facilitating compliance with historic preservation laws and

agreements (the installation commander remains the responsible party to ensure compliance with historic preservation laws); and

5. The original architectural and engineering records on INAAP are installation historical files. If no Army office requires these records for its mission, the CRM will forward these architectural and engineering records to the National Archives Records Administration; and

6. The Army will preserve photographs, artifacts, reports, records, information papers and other documents that are deemed to be unique to INAAP. Such documents and photos will either be retained by the Historian of INAAP's previous Command, the Operations Support Command (OSC) or any successor command, submitted to the National Archives or submitted to the Center for Military History, depending which is the appropriate repository for such information. Any duplicates of the above items or items not selected by the Army, may be claimed by the SHPO or by an entity or entities recommended by the SHPO.

II. ENVIRONMENTAL REMEDIATION

A. The Army may treat and demolish historic buildings or structures that pose a threat to health and safety due to unsafe conditions of the structure or contamination by hazardous, toxic, and/or radiological substances. If such remediation actions must occur prior to completion of the mitigation measures noted in I.B.1 above, the Army will provide a description and justification for such actions to the SHPO. If requested, external and (conditions permitting) internal photographs of the property in its extant condition will be taken.

B. The Army shall consult with the SHPO in the development of plans for the treatment of historic/prehistoric archeological properties that require remediation due to hazardous circumstances.

C. Emergency undertakings shall be handled in accordance with 36 CFR 800.12.

III. DISCOVERY

If previously unknown archeological sites are encountered by the Army or other entity prior to transfer of INAAP property from the Army to the INAAP RA or other entities, the Army shall

notify the SHPO and other interested parties and then consult in accordance with those procedures delineated in 36 CFR 800.13(b).

IV. ANTI-DEFICIENCY ACT

The stipulations of this agreement are subject to the provisions of the Anti-Deficiency Act, 31 U.S.C. Section 1341 et. seq., which states that the government may not authorize expenditures exceeding available funds or obligate funds before an appropriation is made. The Army understands that it has a responsibility to carry out the mandates of the NHPA, but if compliance with the Anti-Deficiency Act alters or impairs the Army's ability to implement the stipulations of this agreement, The Army will consult in accordance with the revisions and termination processes found at Stipulations VI and VII of this agreement. Therefore, it is critical to meet the schedules specified in stipulations.

V. DISPUTE RESOLUTION

A. Should the SHPO object to the Army's implementation of any part of this agreement, the Army shall consult with the SHPO to resolve the objection. If the Army determines that the objection cannot be resolved, the Army shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

1. Provide the Army with recommendations, which the Army will take into account in a final decision regarding the dispute; or

2. Notify the Army that it will comment pursuant to 36 CFR 800.7(c), and proceed to comment within 45 days. The Army will take into account any Council comment provided in response to such a request in accordance with 36 CFR 800.7(c)(4).

B. Any recommendation or comment the Council provides pertains only to the subject of the dispute; the Army's responsibility will not change--to carry out all actions under this agreement that are not the subject of the dispute.

VI. REVISIONS

Any Party to this agreement who recognizes it is impossible to meet some portion of the agreement must immediately request the other Parties to consider revision. Should any party to this

notify the SHPO and other interested parties and then consult in accordance with those procedures delineated in 36 CFR 800.13(b).

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VI. REVISIONS

Any Party to this agreement who recognizes it is impossible to meet some portion of the agreement must immediately request the other Parties to consider revision. Should any party to this

Agreement be unable to maintain a level of effort sufficient to carry out the terms of this agreement, that Party shall notify the others and seek an appropriate revision.

VII. TERMINATION OF AGREEMENT

A. Any Party to this agreement may terminate it, provided that Party gives thirty-days (30) notice to the other Parties, and provides the other Parties an opportunity to consult prior to termination in order to seek revision or other actions that would avoid termination. In the event of termination, the Army will comply with 36 CFR Part 800.3 through 800.7 with regard to the individual undertakings this agreement covers for any Army-owned historically-eligible property remaining at INAAP.

B. After the SHPO has received, reviewed, and approved the photos and documentation described in Section I.b.1. of this agreement, the Army will consider the terms of this agreement as fulfilled for the treatment of historic buildings and structures. No further consultation with the SHPO or Council will be required for these historic properties.

VIII. SUNSET CLAUSE

This Programmatic Agreement shall continue in force until such time as all mitigation measures have been completed for the INAAP historic district and accepted by the SHPO and all NRHP eligible archeological properties have been transferred out of Army control.

Execution and implementation of this Programmatic Agreement evidences that the Army has satisfied its responsibilities under Sections 106, 110, and 111 of the National Historic Preservation Act for all individual undertakings of the program.

DEPARTMENT OF THE ARMY

BY: _____ DATE: May 27, 2003

JAMES R. DAVIDSON
Director, National Capitol Region Field Office
U.S. Army Installation Support Management Activity

INDIANA STATE HISTORIC PRESERVATION OFFICER

BY: John W Davis DATE: 6-4-03
for JON C. SMITH
Deputy State Historic Preservation Officer

CONCURRING PARTIES

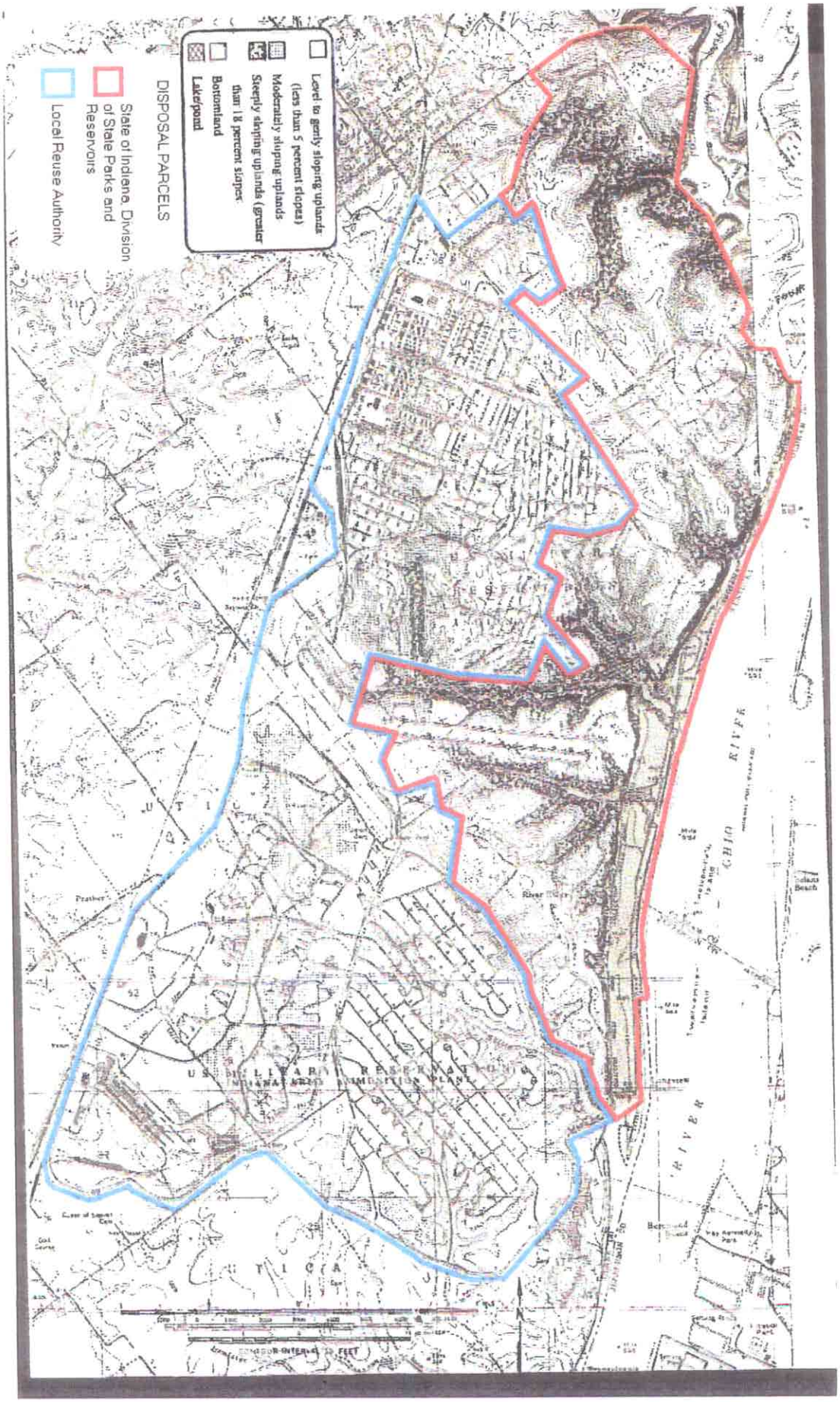
INAAP REUSE AUTHORITY

BY: R Marc Elliott DATE: 6-16-03
R. MARC ELLIOTT
Executive Director

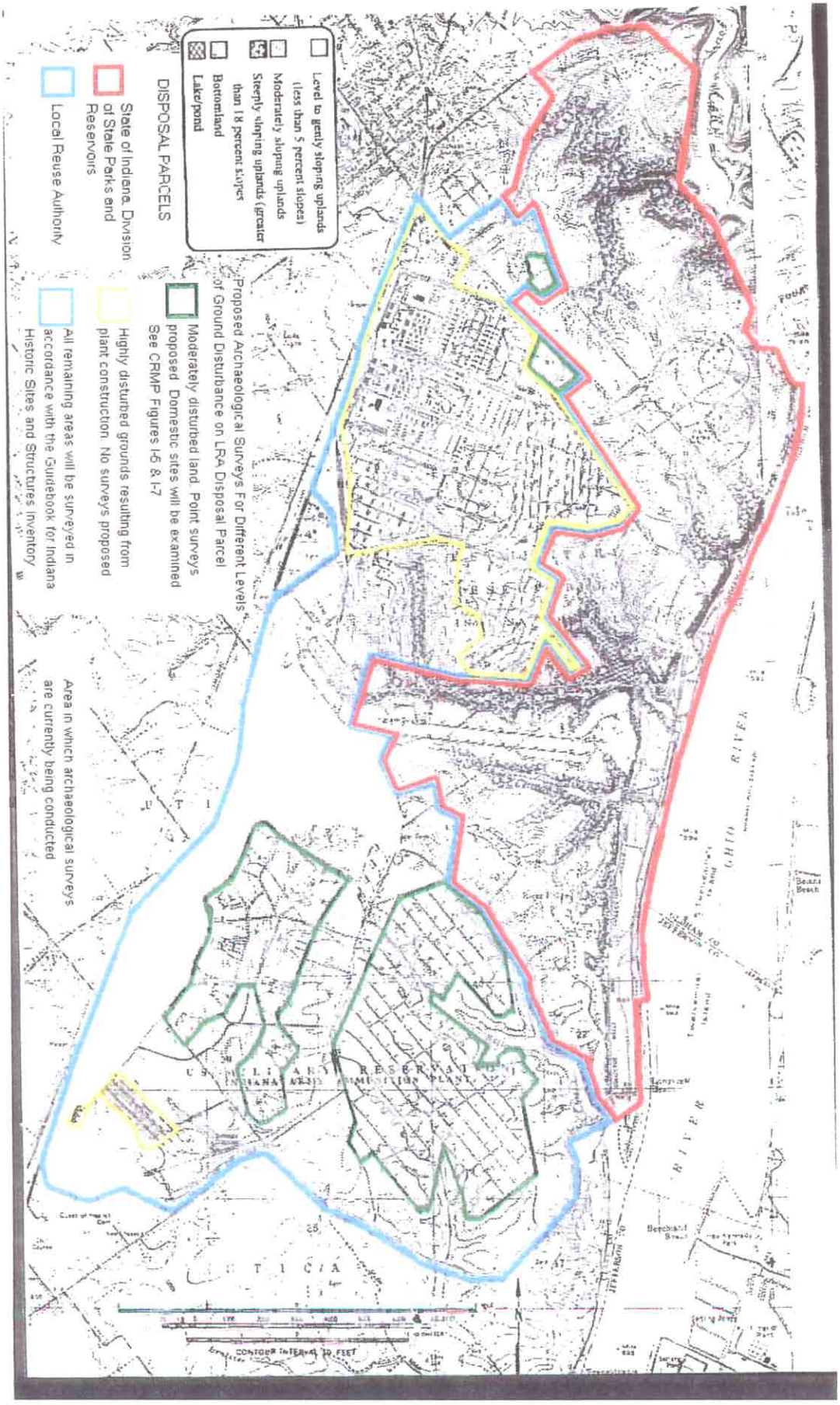
INDIANA DEPARTMENT OF NATURAL RESOURCES

BY: John R. Goss DATE: 6/9/03
JOHN R. GOSS
Director

ATTACHMENT 1
PLANT BASE



ATTACHMENT 2
ARCHAEOLOGICAL SURVEY AREAS



ATTACHMENT 3
CULTURAL RESOURCE MANAGEMENT PLAN STANDARDS

The following standards apply to the Cultural Resource Management Plan (CRMP) to be prepared by the State of Indiana, Department of Natural Resources, Division of State Parks and Reservoirs (ISPR) for Charlestown State Park.

1. Prepare the CRMP by or under the supervision of an individual who meets, or individuals who meet, at a minimum, appropriate professional qualifications standards as provided in the Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61,) and 312 IAC 21.

2. Prepare the CRMP with reference to:

A. Any portions of Army Regulation 200-4, Cultural Resources Management (present and future editions) applicable to ISPR;

B. The Secretary of the Interior's Standards and Guidelines for Preservation Planning (48 FR 44716-20); and

C. The Section 110 Guidelines (53 FR 4727-46; Advisory Council on Historic Preservation and National Park Service 1989); and

D. The Indiana State Historic Preservation Plan.

3. Prepare the CRMP in consultation with the SHPO.

4. The CRMP shall address the full range of historic properties that may exist on the lands including buildings, structures, objects, archeological sites, landscapes, and traditional cultural properties.

5. Make integration goals appropriate to the nature of historic properties, the nature of the lands, and the nature of ISPR's mission. In order to facilitate such integration make the CRMP, including all maps and graphics, consistent with ISPR's planning system.

6. The CRMP need not be a single document.

7. The CRMP will include the following elements:

A. An explicit statement of ISPR Policy toward historic properties. That statement will explain how to address the

requirements of applicable historic preservation laws and regulations.

B. An introduction to the organization and use of the various sections of the CRMP.

C. A synthesis of available data on the history, prehistory, landscape architecture, and ethnography of the lands and the surrounding area, to provide a context in which to evaluate and consider alternative treatment strategies for different classes of historic properties.

D. Procedures for the identification and evaluation of historic properties potentially affected by activities on the lands. These procedures will provide for identification and evaluation on a timely schedule during the planning for actions that might affect historic properties.

E. Procedures for the management of historic properties within the lands, including but not limited to;

(1) Procedures for the use of historic properties for agency purposes or the purposes of others, in a manner that does not cause significant damage to or deterioration of such properties, with reference to the Section 110 Guidelines, Section 110(a)(1), Discussion (b); and

(2) Procedures for affirmative actions to preserve historic properties, with reference to the Section 110 Guidelines, Section 110(a)(1), Discussion (c); and

(3) Procedures for the maintenance of historic properties with reference to the Section 110(a)(2), Discussion (d)(1)(i); and

(4) Procedures for the avoidance or mitigation of adverse effects on historic properties, with reference to the Section 110 Guidelines, Section 110(a)(2), Discussion (d)(1)(iii); and

(5) Procedures to consult with relevant parties, during implementation of the CRMP, with reference to the Section 110 Guidelines, Part III. These procedures will identify circumstances, timing, and procedures to consult with the SHPO.

F. An explanation of how the activities at Charlestown State Park will comply with the Native American Graves Protection and

Repatriation Act, Public Law 101-601, including but not limited to:

(1) A discussion of the known or probable locations of Native American cultural items, as that term is defined in the Native American Graves Protection and Repatriation Act; and

(2) A discussion of the known or probable nature of those Native American cultural items; and

(3) A discussion of whom will obtain any necessary permits under Section 4 of the Archeological Resources Protection Act of 1979, 16 U.S.C. 470aa, et seq.; and

(4) A discussion of what the Archeological Resources Protection Act permit should specify in order to minimize the potential for a 30-day work stoppage; and

(5) What (if any) Indiana tribe will be consulted prior to the planned excavation or removal; and

(6) What disposition will be made of the excavated or removed items; and

(7) What will constitute proof of consultation under (5) above.

ATTACHMENT 4

ACTIVITIES THAT NEED NOT BE REVIEWED BY THE SHPO

1. Non-ground disturbing maintenance work on existing features such as roads, fire lanes, mowed areas, disposal areas, and ditches.

2. Disposal of unexploded ordnance wherever it is located on INAAP.

3. Agricultural and grazing leases that conform to Indiana statute (IC 14-21-1 and IC 35-43-1) regarding damage to human remains, cemeteries, and burial grounds.

4. Timber management and harvesting in areas previously surveyed for historic properties, or exempted from archeological inventory requirements in consultation with the SHPO, when the Army avoids identified properties and those resources of undetermined NRHP eligibility. The Army will place skid trails and loading and logistical staging areas at least 50 feet from a historic property or resource of undetermined status.

5. Hunting and fishing actions.

6. Use of land for training, when such training involves no off-road vehicle use or ground disturbance.

7. Recreational camping in designated areas selected in consultation with the SHPO.

8. Outgrants and contracting actions when the proposed use involves no active or potential construction, alteration, destruction, relocation of buildings or structures, or disturbance of the ground surface in the immediate area of the building or structure.

9. Facilities maintenance activities by the Army that do not alter the building facades or interior structural support system. (Alteration does not include repair of deteriorated materials or missing elements, which is exempt when they are replaced in kind or with materials that duplicate the original.)

10. Use of building(s) or structure(s) in which the use is the same, or very similar, to work that has been done at the building(s) or structure(s) and that the use shall not require or include any building modifications and/or alterations.

11. Reviews, reports, studies, undertakings for planning purposes and decision making, including reports of excess, provided that no lands or facilities are physically laid away or disposed of by demolition, sale, or transfer, without appropriate documentation, coordination or other action as required by this agreement.

Appendix F – Finding of No Significant Impact

The Finding of No Significant Impact (FNSI) indicating no significant impact on the local and regional environment.

FINDING OF NO SIGNIFICANT IMPACT (FNSI)
EXPLOSIVE DECONTAMINATION
OF SELECT BUILDINGS
INDIANA ARMY AMMUNITION PLANT

Description: The proposed action is to perform explosive decontamination efforts and the disposal of real property at Indiana Army Ammunition Plant (INAAP).

Alternatives Considered: A "no action" alternative and a "traditional demolition" were considered and would not be in the best interest of INAAP or the community. An alternative to decontaminate select buildings by Thermal Decomposition has been chosen for the required action.

Impact: There are no anticipated significant impacts on the local or regional environment.

Conclusion: Since no significant impacts to the environment are anticipated by the proposed action, an Environmental Impact Statement (EIS) will not be required.

Point of Contact: Kerry Dupaquier (812) 256-7316
Commander's Representative

Reviewed By: Richard P. Mendoza 29 Sep 03
Date

Approved By: _____ _____
Date

Public Comment: Persons wishing to comment may obtain a copy of the Environmental Assessment at INAAP Building 703, at the Charlestown Public Library (51 Clark Road, Charlestown IN 47111; Mon-Thurs 9am – 8pm; Fri-Sat 9am-5pm), or by writing to:

Kerry Dupaquier
Indiana Army Ammunition Plant
Highway 62
Charlestown, IN 47111